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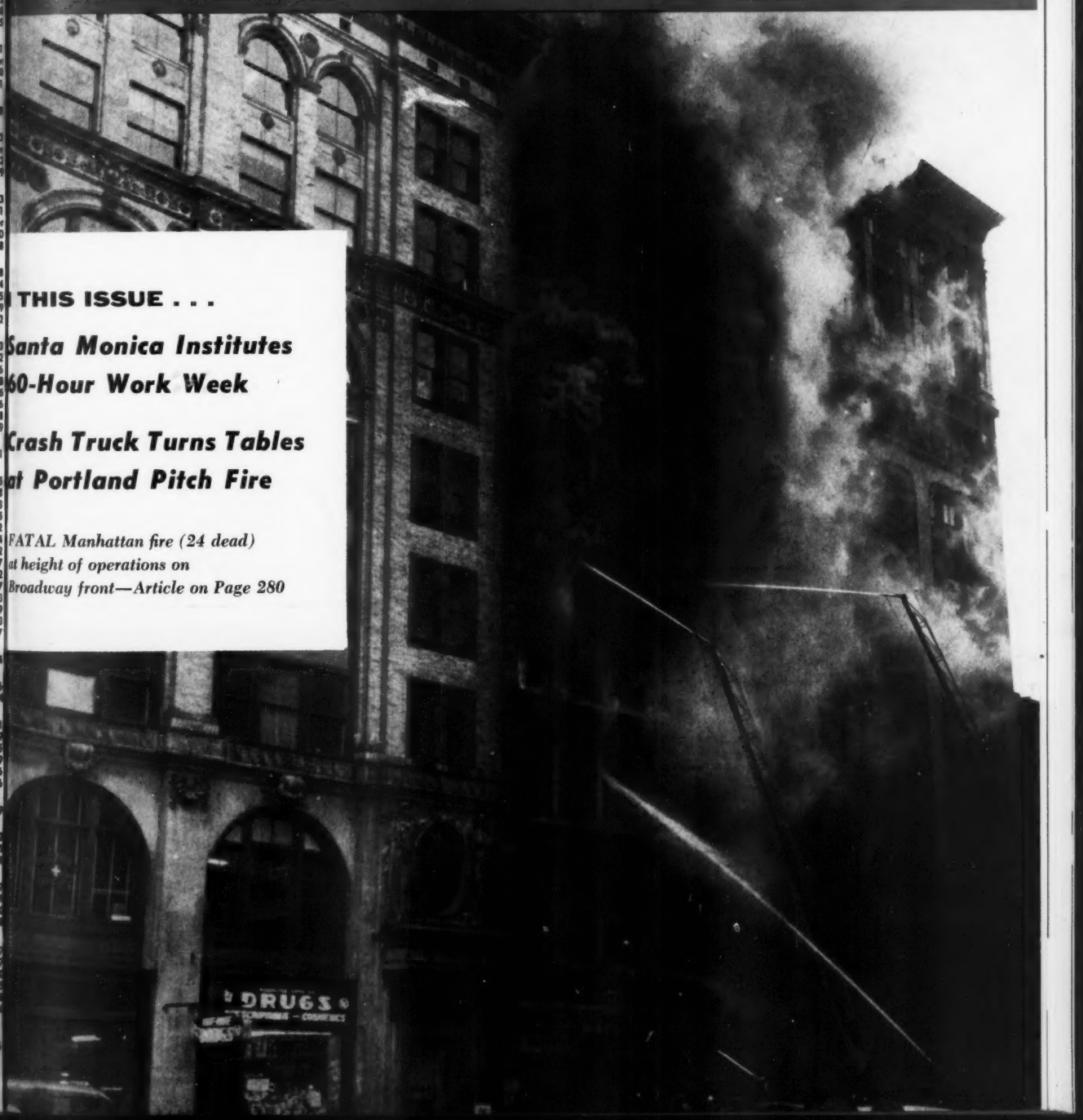
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

APRIL, 1958



IN THIS ISSUE . . .

Santa Monica Institutes 60-Hour Work Week

Crash Truck Turns Tables at Portland Pitch Fire

FATAL Manhattan fire (24 dead) at height of operations on Broadway front—Article on Page 280

You are invited—

to write us for information on this great new engine. We'll be glad to forward complete data.

MAXIM

Presents a NEW

Supercharged Engine

with

Solid Fuel Injection

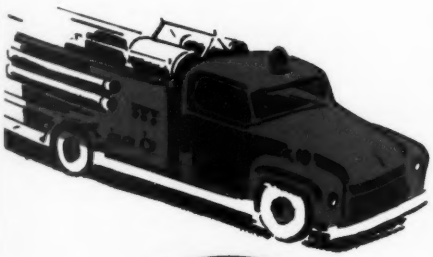
PIONEER BUILDER OF A COMPLETE
LINE OF MOTOR FIRE APPARATUS

MAXIM MOTOR COMPANY

MIDDLEBORO, MASS.

Specify the Best

The SUPER Beacon Ray



The new SUPER Beacon Ray Model #174 is a four-way 360° revolving warning light. It does not revolve continuously. It revolves through 95° and reverses to produce an "off beat" irregular flash of increased intensity.

The SUPER Beacon Ray revolves more slowly than conventional beacons, almost doubling the beams effectiveness. Having two lamps more than the ordinary beacon offsets the slow rotation and provides proper flash frequency and interlude for maximum results. The SUPER Beacon Ray #174 is identical in general appearance and dimensions to the famous, original Beacon Ray. Available for permanent roof mounting, for pipe mounting, or for demountable applications. Write for Bulletin No. 22 today.

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FIRE ENGINEERING

VOL. 111 APRIL, 1958 NO. 4

IN THIS ISSUE

Lessons from a Second "Triangle"—*An Editorial* 279
By Roi B. Woolley

Panic Piles Up the Dead in New York Loft Fire 280

Santa Monica Institutes 60-Hour Work Week 283
By Chief C. N. Carrell

The Legend of the Aerial Ladder 284
By Clarence E. Meek

Theory and Application of Wet Water—Part 3 288
By Paul F. DeGaeta and Arnold A. Weintraub

Newark Uses Aerial Ladders as Emergency Radio Towers 291

Crash Truck Turns Tables in Portland Pitch Fire 292
A special Report by Chief H. E. Simpson

Formula for Determining Vertical Reach of Streams 294
By Colonel Plinio Rolim de Moura

Four Killed in "Space Age" Fire Blast 296

DEPARTMENTS

Manufacturers' News	298	Short Cuts and Gadgets	312
False Alarms	302	What's Burning	314
Among the Buffs	304	World-Wide Fire News	319
The Round Table	306	Watch Desk	322
Questions and Answers	310	Persons in the News	328

Crossed Trumpets Carry as Many Obligations as They Do Privileges

The obligations and responsibilities of a fire fighter increase with his rank.

Putting on a chief's badge doesn't mean putting off responsibilities. Rather it means new duties, new accountabilities.

When you're a proby' you long to be an officer. When you're 'made' you aspire to the crossed trumpets—and more and more of 'em.

But those trumpets don't come easily. They have to be won. It takes blood, toil and sweat, and most important, study. How did the old couplet go?

The heights of great men reached and kept,
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upwards in the night.

For over 80 years FIRE ENGINEERING has been the "study bible" for those fire fighters who aspire to wear the trumpets and who toil upward in the night. It is a safe statement too, that more promotional examination questions are based upon FIRE ENGINEERING's editorial content than any other one periodical.

No wonder that FIRE ENGINEERING has shown consistent growth over the years—in readership, editorial and advertising content.

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FABRILON

WITH

DOUBLE-SURFACE JACKETS

DOUBLE-SURFACE MEANS DOUBLE-SERVICE

This is a magnified cross-section cut length wise through a FABRILON hose jacket. The cabled warp strands are shown closely interwoven with FABRILON filler cords in FABRIC's exclusive *twill woven* construction.

For every stitch that is inside there are *two* on the outside, which means that *twice* as much material is on the *outside* of the jacket, producing a smooth, *double-wearing* surface attained only in our *twill woven* FABRIC jackets.

FABRIC FIRE HOSE COMPANY

THE ONLY EXCLUSIVE MANUFACTURER OF FIRE HOSE IN AMERICA

SANDY HOOK CONNECTICUT

IN CANADA *Pierre Thibault* CANADA, LTD., LTEE., PIERREVILLE, QUEBEC

1957 OFFICE OF THE YEAR AWARDED BY OFFICE MANAGEMENT MAGAZINE

Mutual Benefit chose

Fyr-Fyter Equipment

for security backed by service!

FYR-FYTER EQUIPMENT AT MUTUAL BENEFIT LIFE INCLUDES:

42 combination hose and extinguisher cabinets • 5250 ft. of linen hose with chrome couplings, nozzles • 20 single extinguisher cabinets • 126 water extinguishers (for cabinets or wall racks) • 28 CO_2 extinguishers to protect utility rooms and kitchens.

Mutual Benefit Life Insurance Company's new 20-story home office in Newark, N. J., is completely protected against all fire hazards by Fyr-Fyter equipment. Fyr-Fyter offers the highest quality and most dependable fire protection equipment, backed by the most thoroughly trained and experienced sales and service organization in the industry. The fire protection survey of the Mutual Benefit building, equipment recommendations and installation supervision were all part of the individual attention and professional service Fyr-Fyter extends to each customer. Fyr-Fyter also gives prompt recharge service, plus helpful advice on new or increased fire hazards.

Let Fyr-Fyter equipment protect your building! Fyr-Fyter offers a complete line of portable fire extinguishers, cabinets, hose, hose racks and reels, hose couplings and nozzles, valves, brackets, etc. Write today for free catalog describing 1200 items sold by Fyr-Fyter—largest *professional* sales and service organization in the industry!

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REPRESENTATIVES IN PRINCIPAL CITIES

B.F.Goodrich report:

50-foot fire extinguisher handles like a feather

CARRYING heavy, bulky fire hose up fire escapes, ladders or wet-soaked stairways is a dangerous, back-breaking job. But B.F.Goodrich Fire King hose has lightened the load for the firemen of the Ocala (Florida) Fire Department.

Fire King is 22% lighter, much more flexible than ordinary hose. As a result, it's easier to carry, gets into action faster. Fire Chief Tom Sexton says his men like it because it makes their work easier. It racks naturally on the truck bed, saves loading time after the fire.

The lightness and flexibility of this hose comes from the Dacron chemically-produced fiber used as "filler cords" which go around the hose and carry the load under pressure. These cords are thinner, yet stronger than cords used for reinforcement on heavier, bulkier hose. Fire King is tested to 600 pounds pressure and can stand up to twice as much pressure without bursting.

Another important safety factor that can be specified with B.F.Goodrich hose is Superseal protection. This exclusive B.F.Goodrich treatment gives 10 times more resistance to mildew and rotting. Unlike ordinary treatments, which just coat the surface, Superseal penetrates every cord in the inner and outer jacket, prepares the hose for all sorts of weather.

When you want hose that's light, flexible, and will last longer than any other hose sold, get B.F.Goodrich hose with Superseal protection. Your B.F.Goodrich fire hose distributor can tell you more about it, or write *B.F.Goodrich Industrial Products Co., Dept. M-315, Akron 18, Ohio.*

B.F.Goodrich
INDUSTRIAL PRODUCTS

TRIPLE ACTION HPF* for Fir

*John BEAN HIGH PRESSURE FOG the original high pressure (850 psi) fog system

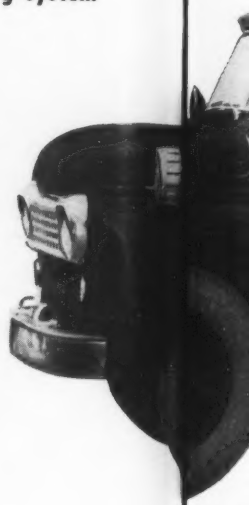
John Bean's High Pressure Fog system is proven and distinguished from all other fire fighting methods. Microscopic fog particles, created by the original John Bean High Pressure Fog Pump (operating at 850 psi), are discharged through the patented No. 29 Fire Fighter Fog Gun. When driven at high velocity to the base of a fire, these fog particles have many times the surface area and heat absorption power of a solid stream of water. So much so that . . . **one gallon of water as high pressure fog has the fire killing capacity of ten or more gallons discharged in a conventional stream.** You can extinguish more than 95% of your fires faster . . . use only 10% or less of the water usually required . . . and do it with greater safety and with little or no water damage.

HPF's 3-WAY ACTION KILLS FIRES FASTER BECAUSE

1. IT COOLS – As it contacts a fire, John Bean High Pressure Fog instantaneously absorbs heat at the the rate of approximately 280,000 BTU per gun, per minute.

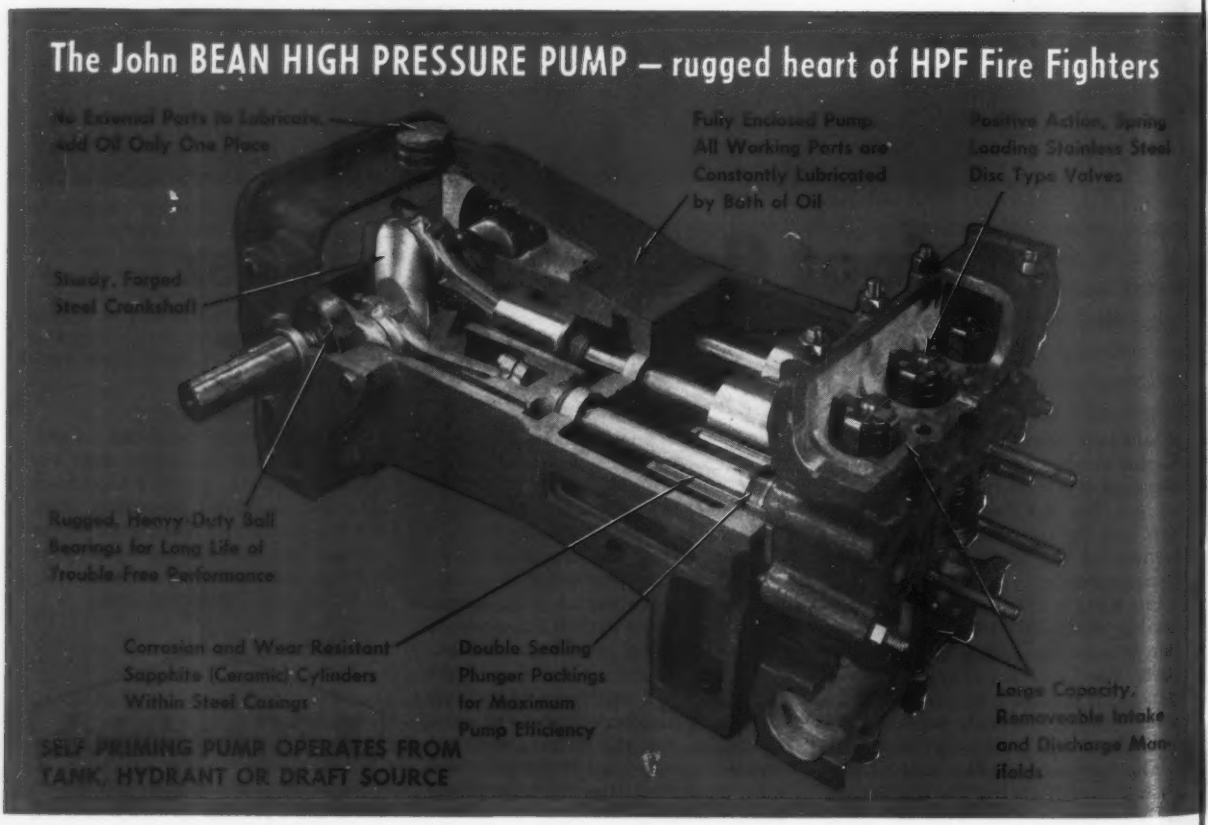
2. IT SMOTHERS – By shutting off oxygen from the fire. As the super fine fog particles absorb heat, they expand 1700 times to form a smothering blanket that displaces the combustion-supporting oxygen.

3. IT ISOLATES – By throwing a barrier of "cold steam" between the burning gases and their source of fuel.

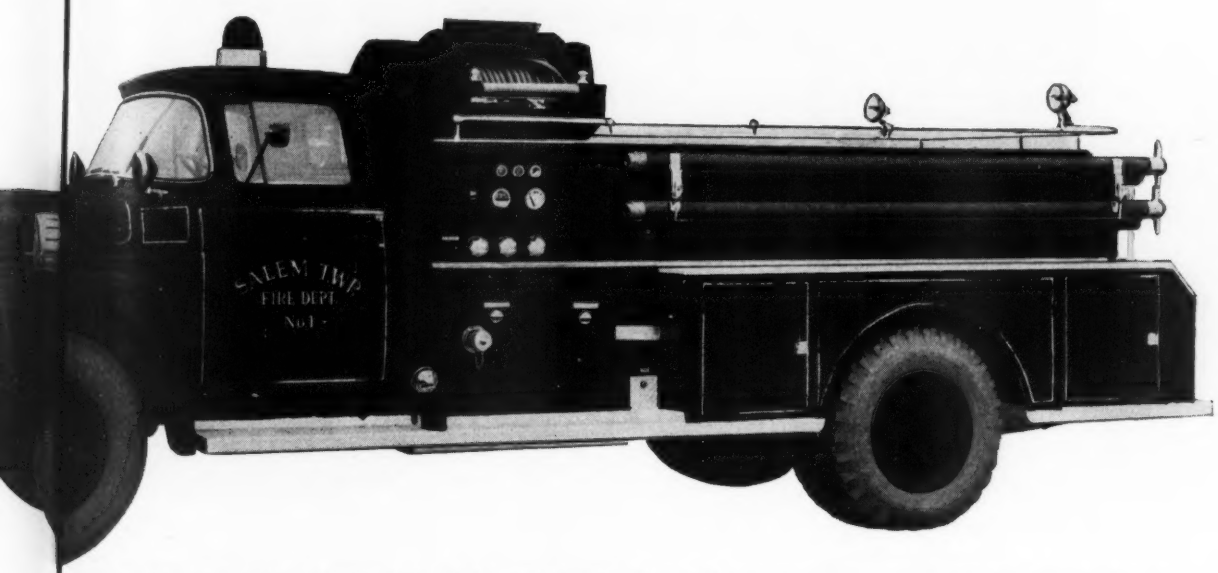


STAND

The John BEAN HIGH PRESSURE PUMP – rugged heart of HPF Fire Fighters


No External Parts to Lubricate — Add Oil Only One Place
Fully Enclosed Pump All Working Parts are Constantly Lubricated by Bath of Oil
Positive Action, Spring Loading Stainless Steel Disc Type Valves
Sturdy, Forged Steel Crankshaft
Rugged, Heavy-Duty Ball Bearings for Long Life of Trouble-Free Performance
Corrosion and Wear Resistant Sapphire Ceramic Cylinders Within Steel Casings
Double Sealing Plunger Packings for Maximum Pump Efficiency
Large Capacity, Removeable Intake and Discharge Manifolds
SELF PRIMING PUMP OPERATES FROM TANK, HYDRANT OR DRAFT SOURCE

Fire Fighting with a 3-WAY PUNCH



STANDARDIZED FOR ECONOMY—John BEAN HPF Fire Fighters mount on most standard truck chassis

ONLY HPF FIRE FIGHTERS GIVE YOU ALL THESE FEATURES

Enclosed Heated Reel Compartments

Removable enclosures winterize the two reel compartments. These, as well as pump, valves, gauges and controls, are warmed by engine heat.

400 Feet of High-Pressure Hose

The 200 feet of special, 5000 psi discharge hose on each reel can be easily handled by one man.

20 Feet of Suction Hose

Standard equipment includes two 10-foot lengths or 2½ inch hard suction hose, complete with suction strainer.

Power Rewind Hose Reels (Optional Equipment)

For faster, easier hose pick-ups, both high pressure hose reels may be equipped with powered rewind mechanisms. Hose reels with hand cranks are standard equipment.

Lighted Control Panel

All gauges, valves and controls are centralized for instant operation—illuminated for safety and easy reading at night.

500-Gallon Six-Compartment Tank

Smooth cornering, starts and stops assured by six-compartment tank with low center of gravity. Prevents undesirable water surge.

Power Take-Off For In-Motion Pumping

Pump is coupled to engine so that pump can be operated for fighting grass, brush and forest fires, while truck is moving. Control for engaging pump is located conveniently in the cab.

Over 45 Cubic Feet of Weatherproof Storage Space

Four large capacity, lighted compartments are built in for proper storage of accessory equipment. Easy opening flush-type door latches.

When minutes count . . .
and you need instant action
. . . or when water's scarce . . .
You can depend upon John BEAN
Original ***HIGH PRESSURE FOG***

WRITE TODAY FOR COMPLETE DETAILS

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Dept. 126

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P. O. Box 145

A Division of Food Machinery and Chemical Corp.

First transistor-powered mobile radios thermostatically protected

General Electric's Progress Line mobile radios now offer transistor advantages in all bands.

New transistorized power supply for both transmitters and receivers means no vibrators to replace, no rotating or vibrating parts to wear out. Transistors, plus high quality silicon rectifiers, give you the most dependable mobile communication known today.

Progress Line mobile radios with transistorized power supplies are available in *all* communication bands: 30 to 100 watts in low band (25-54 mc), 25 or 50 watts in high band (144-174 mc), or 15 watts in UHF band (450-470 mc).

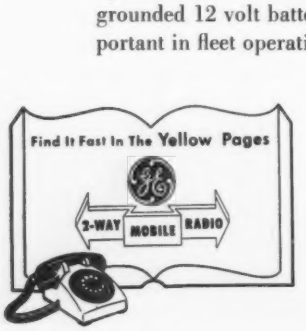
OPERATE FROM EITHER BATTERY POLARITY—Only General Electric's Progress Line lets you operate on either positively or negatively grounded 12 volt batteries. This is especially important in fleet operations.

IMPROVED RANGE—Vibrator hash usually associated with receivers is totally eliminated by the use of transistors. The result is maximum receiver sensitivity.

NOT DAMAGED BY VOLTAGE VARIATIONS—Unlike vibrators, transistorized power supplies can withstand battery voltage variations from +20 to −50 percent.

PROGRESS WITHOUT OBSOLESCENCE—No need to buy new power cable or control head. General Electric Progress Line mobile units with either new transistorized power supply or regular vibrator power supply are *completely interchangeable.*

Call your G-E communications consultant for full details. He's listed under "Radio Communication Equipment" in the Yellow Pages. Or write General Electric Company, Communication Products Department, Section 1248, Syracuse, N. Y.



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A GREAT HOSE PROVED BY YEARS OF FIELD TESTING

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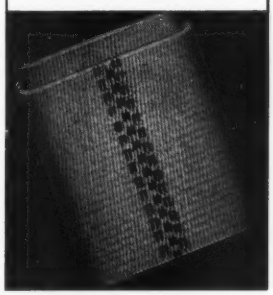
400 AND 600 LB. TEST

50 FT. ORDINARY COTTON JACKET 2½ INCH

50 FT. AMERICAN COTTON-SYNTHETIC 2½ INCH
18% LESS WEIGHT
27% LESS BULK
50% STRONGER



Try this great new hose. See for yourself how its long-lived cotton-synthetic jacket and laminated natural rubber lining make for easy handling, while saving space and weight. Here's the story —

EASIER TO HANDLE—50′ of this AMERICAN Cotton-Synthetic Hose weighs 18% less than 50′ of average cotton jacket hose . . . enables firemen to move more hose faster. Also lies flatter, coils better, stays flexible wet or dry.

SAVES SPACE—AMERICAN Cotton-Synthetic enables you to carry at least 25% more hose.

STRONGER—High strength-to-weight ratio remains same wet or dry . . . tests prove it 50% stronger than regular hose.

Why lug heavy, bulky, hard-to-handle hose?
Order AMERICAN Cotton-Synthetic Jacket Hose—available in 400 and 600-lb. test—from your dealer NOW. . . or write us for details.

THE *American* RUBBER MANUFACTURING CO.

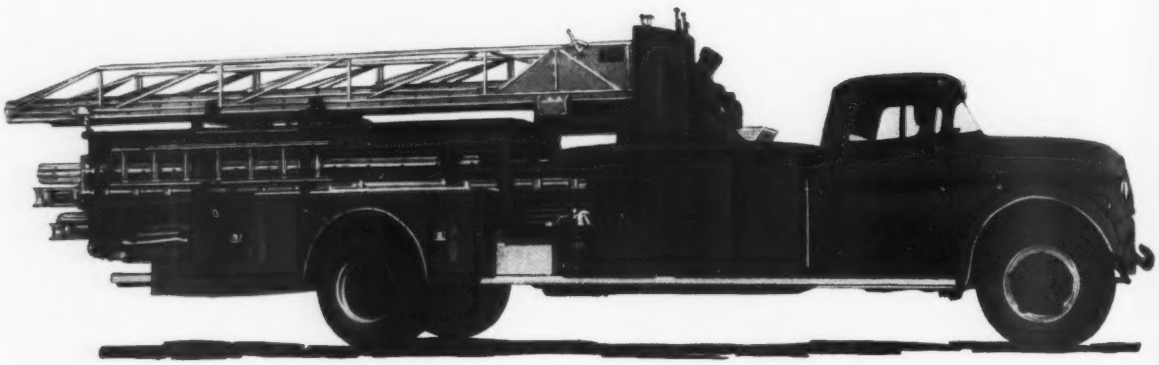
AR-26

MAKE SURE; Look for Identifying Stripe and Test Report

AMERICAN Cotton-Synthetic Jacket Hose has red, white, and blue identifying stripe. Each 50′ length is factory proof tested with couplings on, for strength, stretch, and twist. Test report accompanies hose.

Factory & General Offices: • 1145 Park Avenue • Oakland 8, California • Phone OLympic 2-0800

Announcing a New



C-65 Aerial ladder on G.M.C. 554 chassis.
Note — Chrome plated door latches are optional extra.

The American LaFrance Custom Built 65 ft. all steel aerial ladder, proved the finest in the fire service, now available on Commercial Truck Chassis!

This combination is the greatest value ever produced for the fire service. The fire department requiring a 65 ft. aerial ladder need no longer defer purchase due to budget limitation.

The all steel aerial ladder is standard custom design, material, and strength. The ladder is constructed of corrosion resisting Cor-ten steel with all rails, rungs, and trussing electrically welded to make a homogenous unit of each section. Each main rail of every section is hollow I-beam reinforced construction for maximum strength and stability.

Full hydraulic power is provided with one man control for all aerial ladder operations. Two six inch inside diameter raising cylinders and all operating power units and controls are standard custom built. (The same units are used on all American LaFrance aerials, including 100 ft.) There is ample power for every emergency requirement and hoisting hose for water tower operation. Every operating unit has been service proved.

Five large equipment storage compartments are provided. Four are enclosed type. The large equipment storage box above the ladder bank is 52″ wide x 180″ (15 ft.) long x 9″ deep providing 48.75 cu. ft. of storage space. Four enclosed equipment storage boxes are provided, two on each side of the ladder bank. These large enclosed compartments have the following inside measurements:

Front compartment, each side, 20⅞″ long x 28⅜″ high x 20″ deep. Rear compartment, each side, 32⅝″ long x 28⅜″ high x 20″ deep.

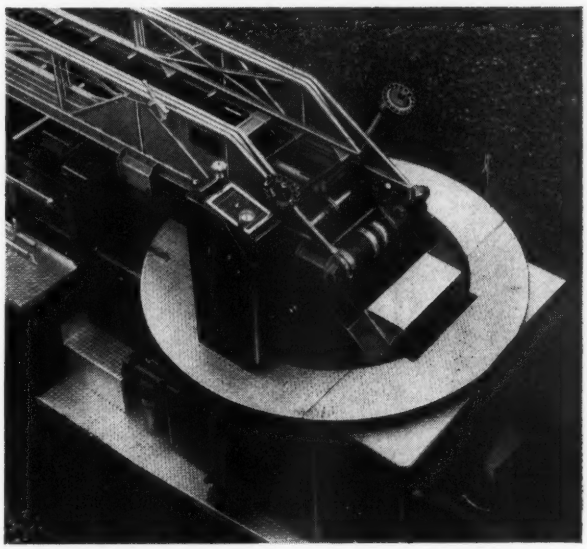
The standard selection of ground or wall ladders is in agreement with the recommended selection of the International Association of Fire Chiefs, National Board of Fire Underwriters, and the National Fire Protection Association as listed in Specification No. 19. Ladders are Alcolite aluminum alloy. The standard selection is:

1-50′ 3-section, extension
2-35′ 2-section, extension
1-28′ 2-section, extension
1-24′ 2-section, extension
1-20′ Single roof
1-16′ Single roof
1-14′ 2-section, extension

No compromise with ladder safety or operating power!

Combination . . .

by AMERICAN LaFRANCE



FEATURES . . .

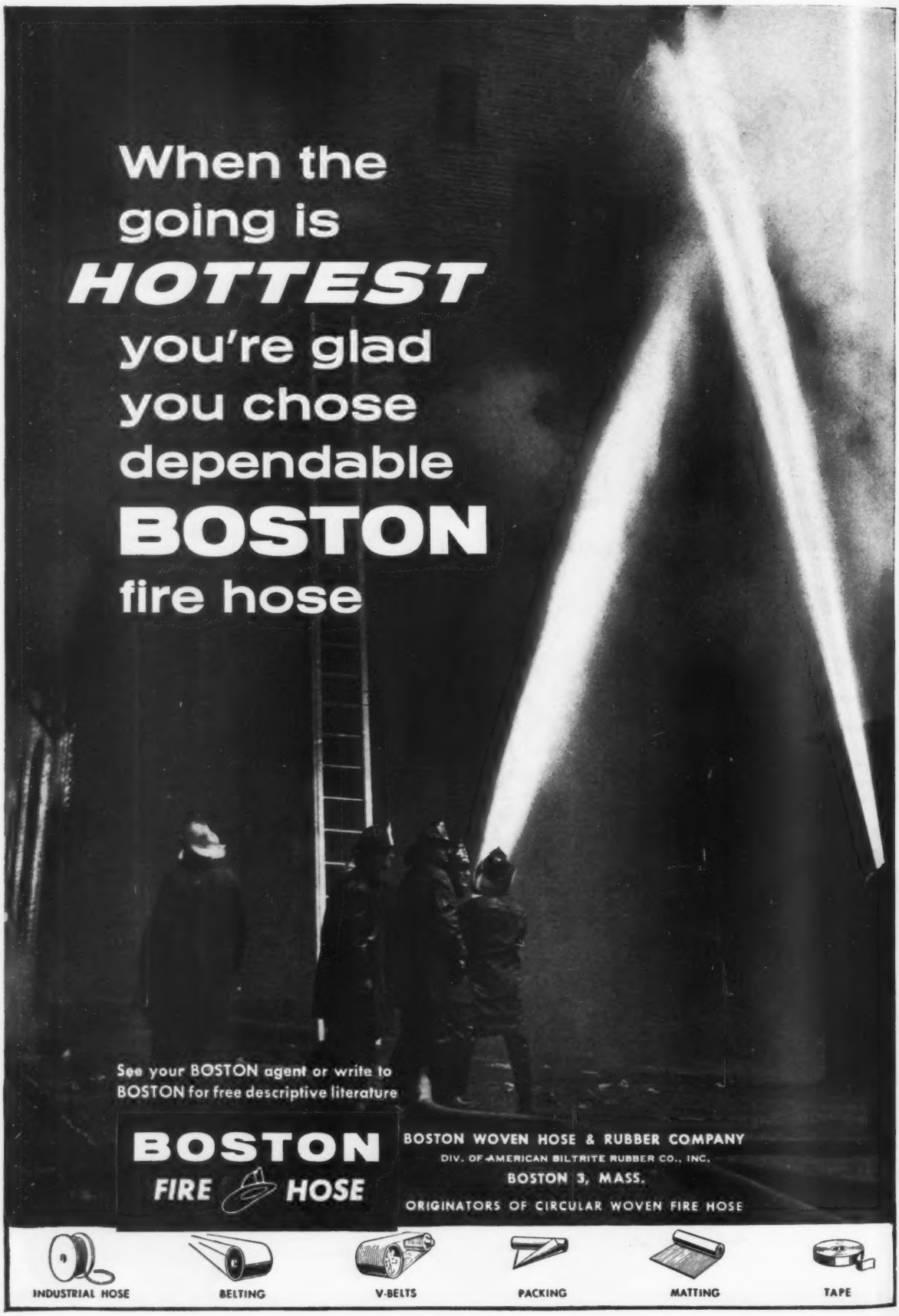
- Short overall length.
- Wide spread (145") ground jacks.
- Automatic indication of maximum load cantilever, top end supported, and water tower operation.
- 1/4 fold life net compartment — waterproof.
- Equipment and tools for fire fighting.
- 222 feet of ground ladders.

Centralized Controls for Efficient Operation.

All power controls for aerial ladder operation mounted in control pedestal. Ladder operation protected by relief valve and automatic stops. Platform 94" diameter. The 65" diameter ball bearing turntable rings insure maximum ladder stability. No obstructions to interfere when ascending ladder or rescue work.

AMERICAN LaFRANCE CORPORATION
ELMIRA, NEW YORK, U. S. A.

LaFRANCE FIRE ENGINE — FOAMITE LIMITED
TORONTO, 9, ONTARIO, CANADA


When the
going is
HOTTEST
you're glad
you chose
dependable
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fire hose
See your BOSTON agent or write to
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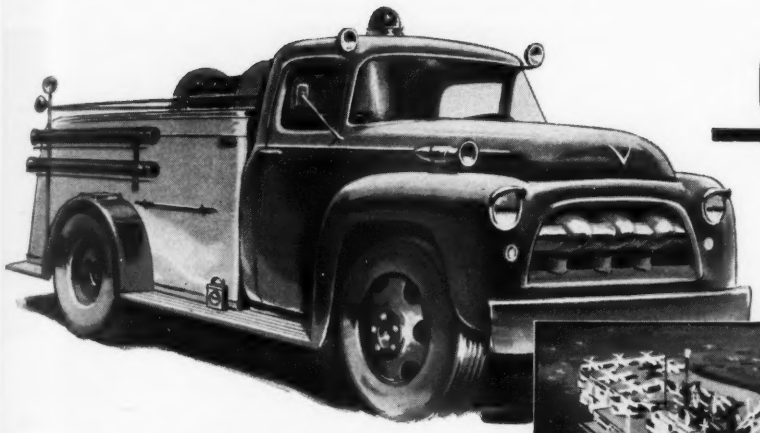
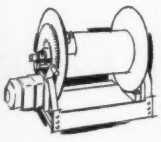


on land and on sea

you'll find

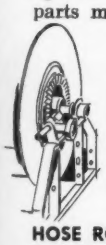
ardmore HOSE REELS

the choice for **dependable service**



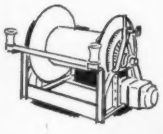
SMOOTH-SEAMED, PERFECTLY ROUND DRUM SURFACE protects hose from damage. Drums and discs made of extra heavy duty gauge steel.

SAFETY GEAR-TO-GEAR DRIVE Direct gear-to-gear drive. No linkage to cause "play" and extra parts maintenance.



COMBINATION BEARING AND SWING JOINT ASSEMBLY—guarantees perfect reel alignment and pressure-tight lines. Supplied for pressures up to 600 pounds and pressures above 600 pounds.

HOSE ROLLERS AND GUIDES For high speed hose take off and rewind from any angle. Prevents hose jumping over reel end . . . protects hose from damage.



● More and more you'll find Ardmore the choice for dependable service . . . particularly where performance must be certain no matter how severe the service condition. Every Ardmore Hose Reel is a quality piece of equipment, the best that better engineering, materials and manufacturing can provide. A good example of Ardmore engineering is the combination bearing and swing joint assembly that (1) results in superior reel support and alignment and (2) guarantees a pressure-tight connection at this critical point of the reel. Ardmore Reels are supplied in a complete choice of explosion proof, starter motor and hand-wind models. Your inquiry is cordially invited.

WRITE FOR FREE CATALOG

Let us send you our "Ardmore Fire Fighting Reels" catalog...gives complete information.

ARDMORE PRODUCTS

1827 SHERMER ROAD, NORTHBROOK, ILLINOIS

America's Fastest Growing Designers and Manufacturers of Engineered Hose Reels

Report from Detroit . . .

"We get into action faster because of the easier handling of hose made with 'DACRON'"

REG. U. S. PAT. OFF.

"Hose made with Du Pont 'Dacron'* polyester fiber has lightness and flexibility that get it into action faster," says Chief Edward J. Blohm, head of Detroit, Michigan, Fire Department. "It dries faster, too—can be put back into service more quickly."

Forward-looking fire departments throughout the country join Chief Blohm in endorsing fire hose properly made with "Dacron". They like its extra strength, which means more dependable hose for the higher pressures used in today's modern fire-fighting techniques. Hose made with "Dacron" racks more compactly, too . . . an extra 500 feet of hose goes into a standard truck bed.

Du Pont makes "Dacron" yarn and supplies it to hose manufacturers. The combination of the unusual properties of "Dacron" plus fire-hose manufacturer's skill has resulted in a superior type of fire hose. Hose made with Du Pont "Dacron" is produced by all leading fire-hose manufacturers. The next time *you* buy hose, be sure it's made with "Dacron". E. I. du Pont de Nemours & Co. (Inc.), Textile Fibers Department, N-5518, Wilmington 98, Del.

**"Dacron" is Du Pont's registered trademark for its polyester fiber.*

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Firemen rack hose at rear of engine. After the call, hose manufactured with "Dacron" dries faster . . . can be put back into active service more quickly.

FIRE HOSE MADE WITH "DACRON"—is easier to handle . . . gives improved performance . . . racks more compactly.

where there's smoke

there's a....

BOARDMAN PUMPER!

IN 180 AMERICAN COMMUNITIES, 250 Boardman pumpers, specifically engineered to local requirements, provide the most efficient and economical fire protection it's possible to buy!

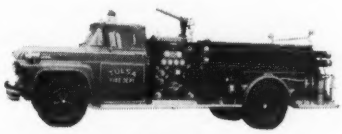
A BOARDMAN PUMPER, designed exactly as you need it, can be mounted on the standard chassis of your choice — for which immediate, economical service is locally available!

Equipped with dependable WATEROUS PUMPS, Boardman fire fighters assure added years of trouble-free service. Pump capacities range from 200 to 1,000 GPM!

WRITE TODAY for your copy of a new, illustrated brochure, *Boardman Fire Fighters . . .* and *when* there's smoke, CALL BOARDMAN! If your need is urgent, a collect call will bring immediate details.

Front mounted, 500 gpm pumper, 700 gal. tank, on Ford chassis.

500 gpm pump mounted amidships, 500 gal. tank, on GMC chassis.

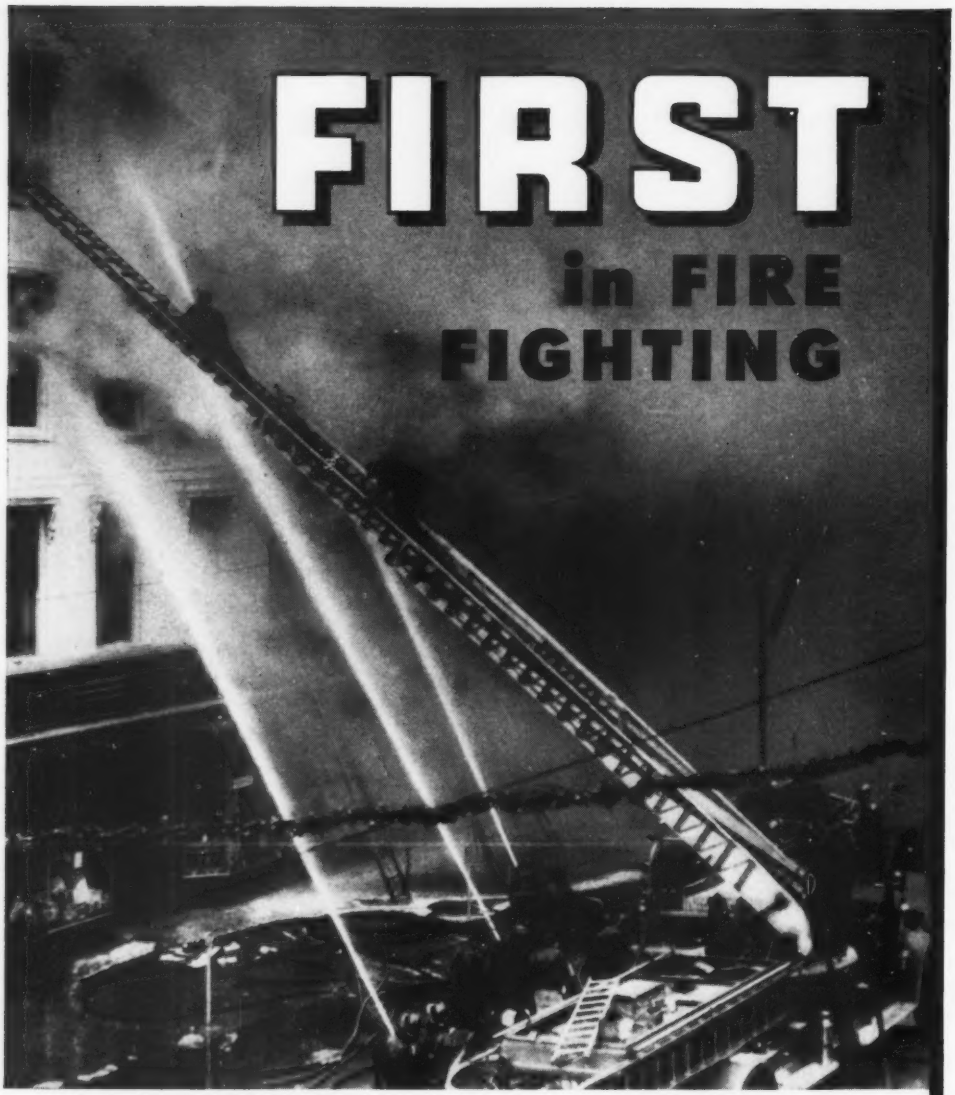


750 gpm amidships pumper, 400 gal. tank and deck gun, Ford chassis.

BOARDMAN

THE BOARDMAN CO.

OKLAHOMA CITY, OKLAHOMA



PIRSCH

WARD LA FRANCE

CENTRAL

FWD

Fire Master Corp.

OREN

AHRENS-FOX
C. D. BECK & CO.
Sidney Ohio

Thibault

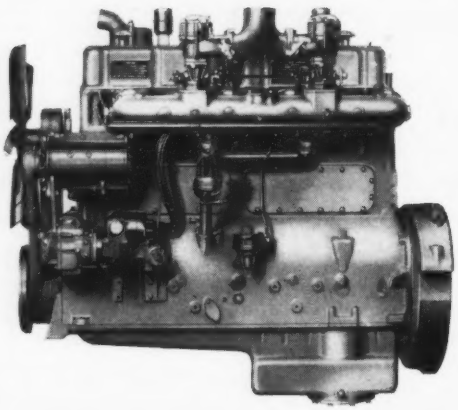
UNIVERSAL

GENERAL FIRE TRUCK CORP.

MAXIM MOTOR COMPANY
MAXIM
MIDDLEBORO MASS.

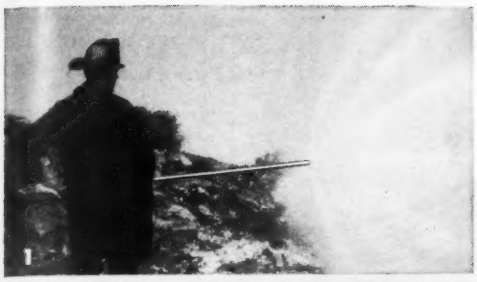
HOWE

Model 145-GZB—300 hp range High-Output Fire Fighter—
Six cylinders, 5⅜-in. bore x 6-in. stroke, 817 cu. in. displ., with counterbalanced and vibration dampened 3½-in. 7-bearing crankshaft; dual downdraft carburetion; dual ignition; precision extra high capacity bearings; removable wet type cylinder sleeves, aluminum pistons, overhead valves with Stellite-faced exhaust valves and seats. Arranged for full electrical equipment and all modern accessories. Get Bulletin 1662.



352-R-1 ***Waukesha Motor Company, Waukesha, Wis., New York, Tulsa, Los Angeles***

WAUKESHA *FIRE FIGHTER* ENGINES



Rockwood WET *gets down to the root of problem fires!*

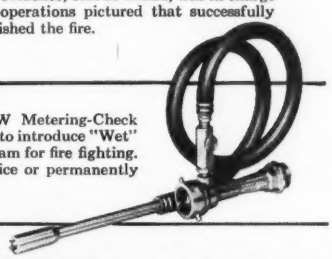
The deep-seated dump or peat fire is a problem faced by many cities and towns. It's an unpleasant, often very expensive problem requiring weeks of work to extinguish. Your town is probably no exception — but you can use exceptional products to extinguish deep-seated fires — the Rockwood Bayonet Piercing Applicator and Rockwood WET. The Rockwood Bayonet Applicator helps you pierce through top layers of debris and get at the heart of the fire. Rockwood WET, a wetting agent, increases the fire extinguishing action of water — making a little water go a long way. And Rockwood WET retains its penetrating action even at high fire temperatures!

With this fire-fighting team you save water, time and *quickly* control smouldering fires.

There are good reasons for you to investigate Rockwood WET and Rockwood Bayonet Applicator. So why not fill in the coupon below and let us send you full information?

Photo strip on left shows (1) Rockwood Bayonet piercing applicator ready for use (2) Rockwood Eductor and Wet feeding wetting agent solution to Bayonet Nozzle (3) Bayonet being inserted at fire location (4) Bayonet partially inserted; note, steam rising from rubble (5) wet water reaches deep seated hot spot causing steam eruption and ground depression (6) Final steam cloud as hot spot is extinguished.

Earl C. Griffith, Chief of Fire Department, of East Providence, Rhode Island, was in charge of the operations pictured that successfully extinguished the fire.



Rockwood's All-Purpose new FW Metering-Check Valve and Eductor was developed to introduce "Wet" or FOAM Liquid into a water stream for fire fighting. It can be used as a portable device or permanently installed on a fire truck.

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

Distributors in all principal industrial areas

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
2031 Harlow Street
Worcester 5, Massachusetts

Please send me your illustrated booklet on Rockwood fire-fighting products.

Name ..... *Title* .....
Company .....
Street .....
City ..... *Zone* ..... *State* .....

Shielding your plant from fire

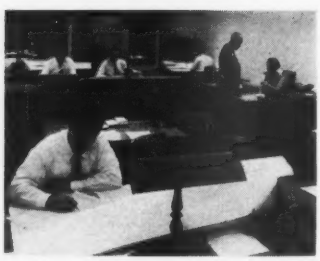
. . . through skilled engineering

of AER-O-FOAM systems

Developments in the *engineering* of fire-fighting foam systems have made foam constantly more efficient . . . and economical . . . in control of fire in flammable liquids.

National Foam, time and again, has pioneered these developments. Through improvements in mobile systems, for example, National Foam has substantially reduced installation costs in modern foam systems.

Safety engineers know they will get the benefit of up-to-the-minute system design when they call in the National Foam representative.

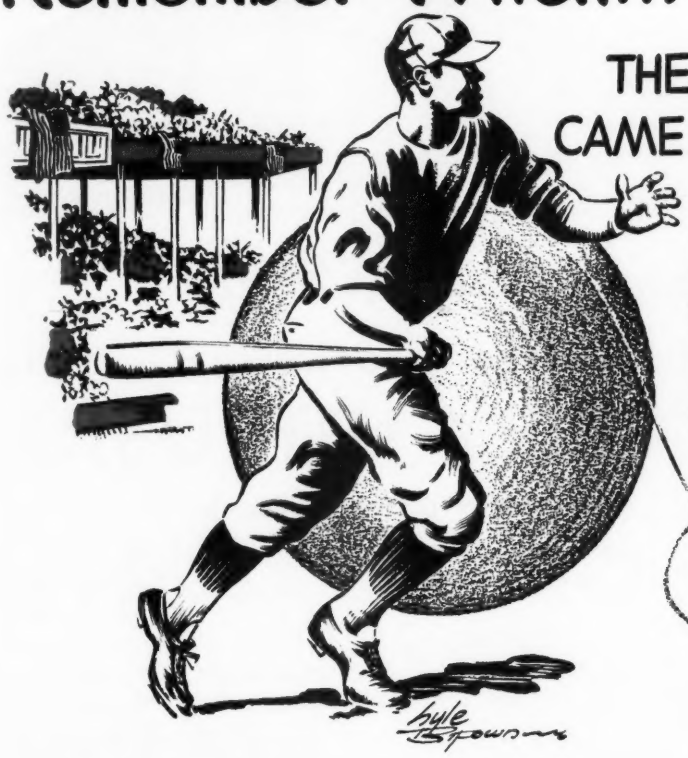


New efficiency in control of fire *is planned in this section of National Foam's engineering department.*

NATIONAL FOAM System, Inc.

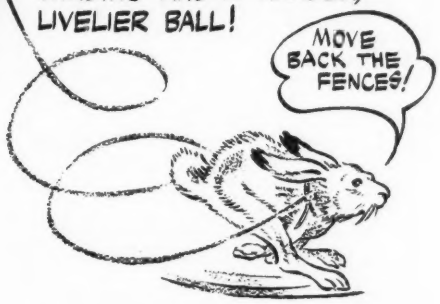
West Chester, Pa.

Remember When...



THE "RABBIT BALL" CAME TO THE DIAMOND!

THE GAME OF BASEBALL WAS REVOLUTIONIZED IN THE 1920'S BY A LITTLE BALL OF YARN... A CHANGE TO AUSTRALIAN YARN IN THE MANUFACTURE OF BALLS MADE POSSIBLE TIGHTER WINDING AND A HARDER, LIVELIER BALL!



Fire Fighting Was Revolutionized by

INDIAN BACK-PACK FIRE PUMPS!

No. 90 INDIAN
Sliding Pump Type

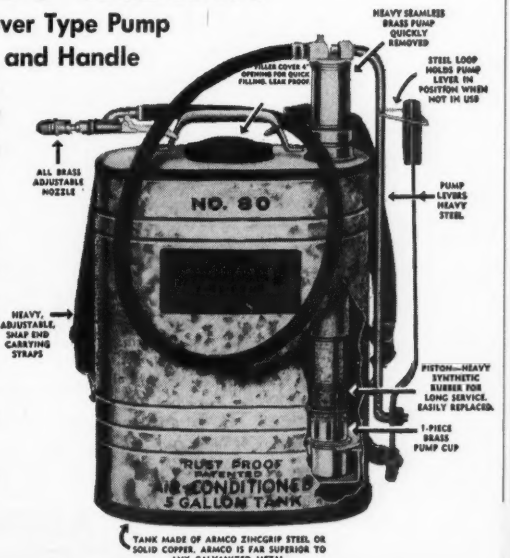
BOTH TYPES APPROVED BY UNDERWRITERS' LABORATORIES, INC.

Fire prevention agencies were quick to appreciate the advantages of a portable extinguisher using only clear water. **INDIAN FIRE PUMPS** have been consistently improved since the early models and are today the most efficient all purpose equipment on the market.

No wonder they are called the "one man Fire Departments."

Write for New Catalog

No. 80 INDIAN
Lever Type Pump and Handle


HEAVY SEAMLESS BRASS PUMP QUICKLY REMOVED
STEEL LOOP HOLDS PUMP LEVER IN POSITION WHEN NOT IN USE
ALL BRASS ADJUSTABLE NOZZLE
PUMP LEVERS HEAVY STEEL
NO. 80
HEAVY, ADJUSTABLE, SNAP END CARRYING STRAPS
PISTON—HEAVY SYNTHETIC RUBBER FOR LONG SERVICE, EASILY REPLACED
1-PIECE BRASS PUMP CUP
RUST PROOF
AIR CONDITIONED
5 GALLON TANK

TANK MADE OF ARMCO ZINCGRIP STEEL OR SOLID COPPER. ARMCO IS FAR SUPERIOR TO ANY GALVANIZED METAL.

D. B. SMITH & CO. "FOR SEVENTY YEARS THE LEADERS" **406 Main St., Utica 2, N. Y.**

Pacific Coast Branches:

Foreign Agents: Finch Bros. Ltd., Vancouver, B. C., Canada; C. E. Hickey & Sons, Ltd., Hamilton, Canada; Bison Hardware Co., Toronto, Canada

Pacific Equipment & Rubber Co., Inc., San Francisco 7, Calif. · Heinrie Supply Co., Los Angeles 15, Calif. · Fred E. Barnett Co., Portland, Ore. · Fred E. Barnett Co., Klamath Falls, Ore. · Hill & Mine Supply Inc., Seattle 4, Wash. · L. N. Curtis & Sons, Salt Lake City, Utah

THE H. J. McGRATH CO.

BALTIMORE

Guards its property *Automatically* . . . . . Gets better protection against FIRE · BURGLARY · INTRUSION and other hazards *and SAVES $2,600 a year*

With ADT Automatic Protection, we get complete and more reliable coverage of our plant with a saving, over our previous method, estimated at $2,600.

R. D. Cleaveland
VICE PRESIDENT

Operating up to sixteen hours a day to supply customers with the popular CHAMPION brand of canned vegetables, the McGrath plant requires the best protection available to prevent interruption of production and losses which inevitably follow a shutdown caused by fire or other disaster.

After experience with other safeguards, company officials decided upon combinations of ADT *Automatic* Protection Services. Though more reliable and effective than previous methods, these services save $2,600 a year.

Protection against fire includes ADT Sprinkler Supervisory and Waterflow Alarm and Aero Automatic Fire Alarm Services. ADT Burglar Alarm and Intrusion Detection Services guard against unauthorized entry of buildings and trespassing on outside areas. ADT Heating Supervisory Service detects and reports abnormal temperature variations.

Business concerns from coast to coast use and endorse ADT *Automatic* Protection because they know that it gives greater security for property, profits and employees' jobs than can be obtained otherwise, and *at less expense.*

ADT

May we show you what ADT can do for you?

Whether your premises are old or new, sprinklered or unsprinklered, an ADT specialist will show you how combinations of automatic services can protect your property. Phone our local sales office; or write to our Executive Office.

Controlled Companies of

AMERICAN DISTRICT TELEGRAPH COMPANY

Executive office: 155 Sixth Avenue, New York 13, N. Y.

A NATIONWIDE ORGANIZATION

DUO Safety

FIRE LADDERS

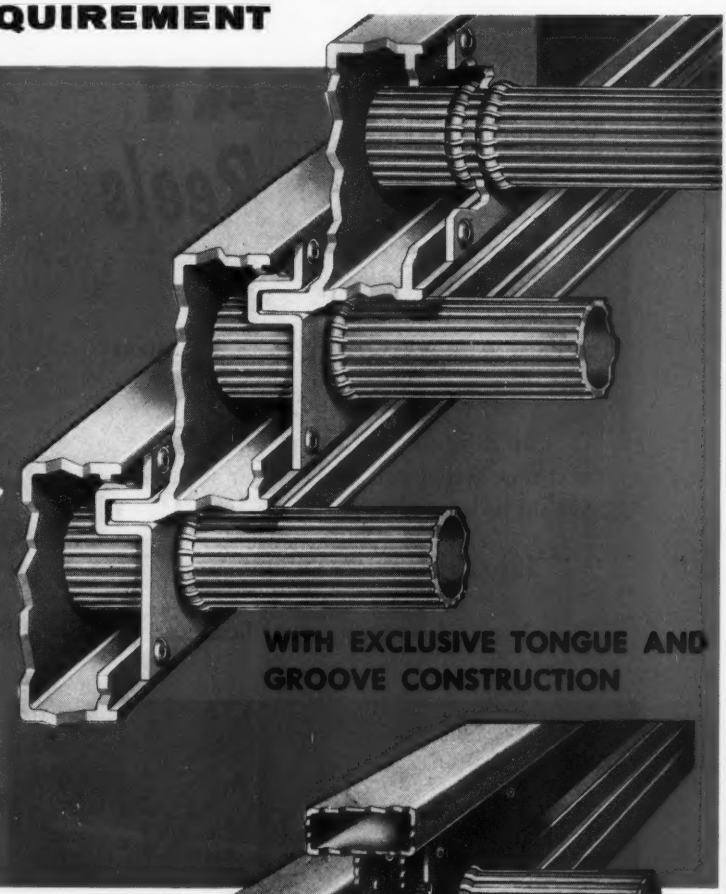
NOW...YOUR CHOICE OF AN ALUMINUM FIRE LADDER FOR EVERY USE... EVERY REQUIREMENT

SERIES 1000-A
For Pumper Use

Featuring lightweight Channel Rail Construction, and is the substitute, in aluminum, for solid side wood ladders. This outstanding fire ladder has exclusive tongue and groove arrangement, Duo-Safety's construction development that holds sections together firmly, rigidly, with no hooks, guides, or obstructions of any kind! Requires minimum banking height. In two and three sections, in lengths up to 30 feet. Rail dimensions—1¼" x 2¾".

SERIES 900-A
For Service Trucks and Pumper Use

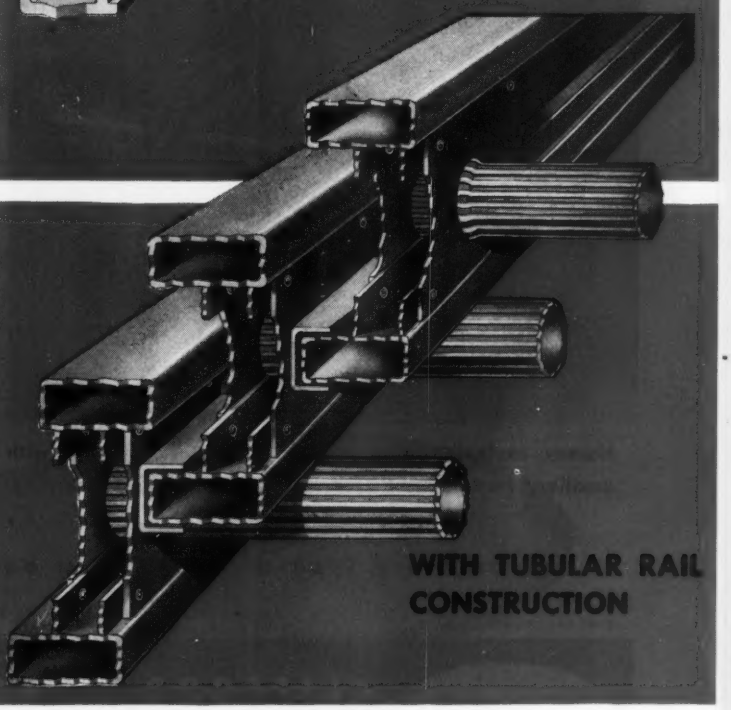
An intermediate ladder in both size and weight, the 900-A Series features slightly heavier construction than the 1000-A Series, but has the same outstanding features. In two and three sections...in lengths up to 40 feet. Rail dimensions 1¼" x 3¼".



WITH EXCLUSIVE TONGUE AND GROOVE CONSTRUCTION

SERIES 500-A
For Service Trucks

Famous aluminum fire ladder that replaces wood truss ladders and features Tubular Rail construction for greater strength and extraordinary safety. Adopted as standard ladder equipment by fire departments the country over. Made in roof and wall ladders...and in two and three section extensions in lengths up to 65 feet.



WITH TUBULAR RAIL CONSTRUCTION

DUO Safety

DUO-SAFETY
LADDER CORPORATION

809 NINTH STREET
OSHKOSH, WISCONSIN

In Canada: LaFrance Fire Engine and Foamite, Ltd., Toronto

FIREFIGHTERS TELL US

Sustaining Member

"We Specify HANNAY® Fire Hose Reels

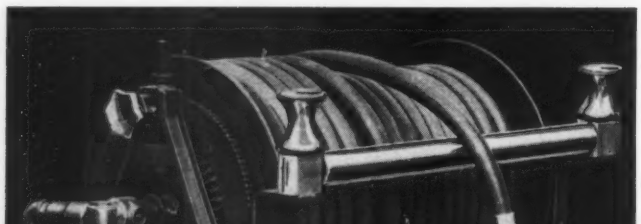
because

. . . their smooth operation assures instant operation at the scene of a fire . . ."

". . . on front line fire equipment only the best time tested and proven equipment should be used . . ."

". . . they are built to take a beating . . ."

". . . I want dependable and efficient service UNDER ALL CONDITIONS . . ."



Hannay **explosion-proof electric motor rewind reel with auxiliary vertical crank rewind and chrome roller assembly.**

There are many different reasons why *HANNAY* Fire Hose Reels are accepted as the finest by firefighters everywhere. Ruggedness, dependability, ease of operation, leak-proof swing joints, outstanding features are among the most mentioned. However, it all goes back to the fact that they are designed and built by active firemen who put into these Fire Hose Reels first-hand knowledge gained through firefighting service. Be sure you get everything you want in your Fire Hose Reels.

For every type of firefighting equipment Specify **HANNAY®**

...Greatest Name in Hose Reels

© 1957 C.B.H.&S., INC.

HANNAY®

CLIFFORD B. HANNAY & SON, INC.

Westerlo, New York

LIFE NETS SAVE 5 WITHIN 4 DAYS!

NETS SAVE FOUR AT BIG NEW YORK LOFT FIRE*

New York Fire Dept.
is equipped with Atlas Deluxe Nets — with 13 more on order

***AND—NET SAVES ANOTHER LIFE AT BIG SCRANTON BLAZE**

Regardless of SIZE of your CITY or TOWN — it is never too small to use LIFE NETS

——AND—WHEN YOU BUY NETS—

SPECIFY THE BEST— ATLAS

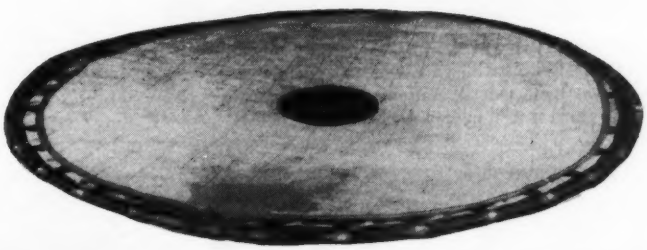
MFG'S. OF ATLAS "DELUXE" AND "400" LIFE SAVING NETS

Again, the life net proves its worth in modern rescue operation—chalk up another five lives saved—with a combination of paid men and civilians holding the net. It's the "first and fastest means of rescue!"

And—you can be sure of the best when you *specify* —and *insist* on getting—ATLAS. The ATLAS DeLuxe is the *only* life saving net with 32 patented dual shock absorbers. The only net designed and built to do the job!

Why wait until you're faced with people ready to jump—it's too late then—write *now* for complete facts on ATLAS Nets.

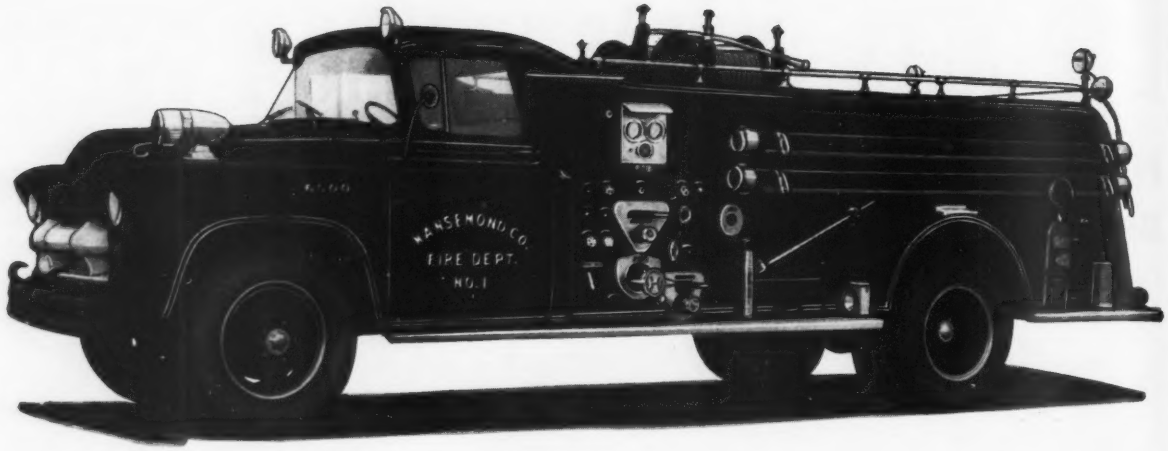
WRITE today for literature 458 on complete line of ATLAS Pompier and Hand Brake Belts; ATLAS Training Tower Net & Frame; Spanner Belts; Hose and Ladder Straps; Axes, insulated for 20,000 volts.



SPECIFY AND INSIST ON ATLAS

Safest and Most Dependable LIFE NETS

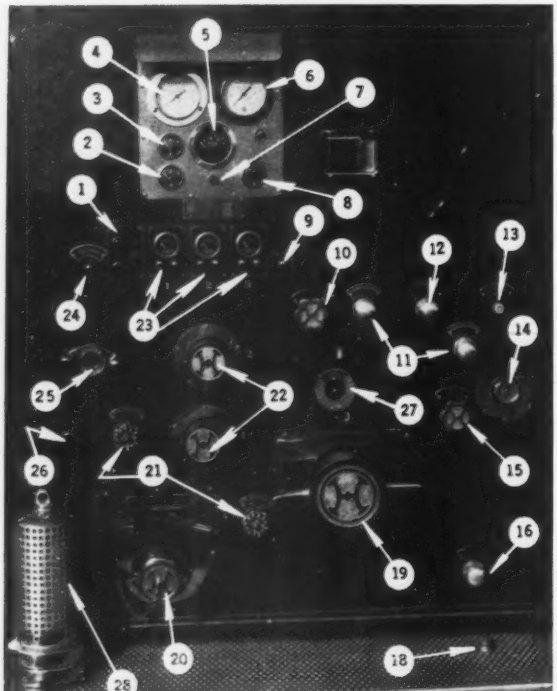
ATLAS SAFETY EQUIPMENT CO., INC.
174 N. 10TH ST., BROOKLYN 11, N. Y.



Another First in Fire-Fighting Power

from HOWE

Incorporating, as always, the latest improved equipment, HOWE built the FIRST pumper featuring the Waterous Electro-Matic fire pump, the only fully power controlled fire pump. The new Waterous Electro-Matic pump features electrical shifting, push button priming and electrically operated transfer valves—also electrically operated 2½" discharge valves optional. Special design impellers and scientifically contoured waterways produce more volume in less space. The complete pump may be removed from top or bottom for servicing, or internal parts may be serviced from underneath. Gears are helical, constant mesh type. Here is added perfection of operation in HOWE Pumpers. Before you buy . . . contact HOWE.



FULLY POWER-CONTROLLED—Close-up of pump operator's panel shows arrangement of the push-button controls for fast, efficient operation. All controls are identified and panel is well-lighted for night operation.

IDENTIFICATION OF ITEMS

1—Electro-Matic transfer valve control
2—Oil pressure gauge
3—Water temperature gauge
4—Compound gauge—Vacuum and pressure
5—Tachometer—Engine speed indicator
6—Pressure gauge
7—Starter switch
8—Ammeter
9—Push button primer control
10—Tank fill valve control
11—1½" outlet controls
12—Reel valve control
13—Hand pump speed counter outlet
14—Tank level gauge
15—Engine cooler control
16—Tank suction valve control
17—Pump drains
18—Primer oiler tank filler
19—Large suction inlet
20—2½" gated suction inlet valve
21—Hose drains
22—2½" gated discharge valve
23—Electro-Matic discharge valve controls
24—Automatic Vacuum Clutch control
25—Pressure relief control
26—Throttle control
27—Automatic pump prime indicator
28—4½" Quick release holder for suction fittings

HOWE

Member FAM (Fire Apparatus Manufacturers Association)

HOWE

"dependable fire apparatus since 1872"

FIRE APPARATUS COMPANY

Dept. FE-48, 1400 W. 22nd St., Anderson, Indiana, U.S.A.

Natecs gives SAFE clearance of intersections . . .

even protects against collisions of two emergency vehicles

In the NATECS system, a receiver mounted on the traffic signal at the intersection picks up a beam from a transmitter mounted on the approaching vehicle. Traffic lights automatically set on the emergency pattern. Then a *white* light turns on, *assuring* the emergency-vehicle driver that the intersection is clear.

If *two* signals are received at an intersection from emergency vehicles approaching from different directions, the white light facing the *second* vehicle flashes on and off, warning that another vehicle has priority.

Operation on radar frequencies permits a *narrow* beam that won't affect any signals but those directly ahead (up to ¼ mile) of the emergency vehicle. Completely automatic. No need to flip a switch as the vehicle changes direction. And after the vehicle passes the intersection, traffic lights automatically revert to normal sequence.

EAGLE

EAGLE SIGNAL CORPORATION
Municipal Division
Moline, Illinois

Eagle equipment saves lives . . . saves time

MAIL COUPON TODAY

EAGLE SIGNAL CORPORATION
Municipal Division, Dept. FE-458
MOLINE, ILLINOIS

Please send complete information on Eagle's new emergency traffic control system.

NAME AND TITLE _____

MUNICIPALITY _____

FULL ADDRESS _____

Chief—You'll never know how effective real fog is until you try the—

DURA-FOG

- Stream can be selected by sight or touch
- Clicks into straight stream or desired fog pattern
- Floating gland type shut off
- Shock absorbent shut-off mechanism
- No kick back
- Rubber bumper
- Sturdy handle

PLATE 261

and the—

FOG CHIEF

- Compact
- Advantage of shut off, straight stream, and a variety of fog patterns
- Operates easily under high pressure
- No kick back
- Rubber bumper

PLATE 262

Both Nozzles, 1½" Size, Can be Supplied with Either 60 or 100 GPM Discharge at 100 PSI, 30° Fog Pattern.
60 GPM for rural areas or where water supply is limited
100 GPM for cities or where water is plentiful

Our 66th Year

POWHATAN BRASS and IRON WORKS
RANSON, WEST VIRGINIA
Phones 93 & 94 Charles Town, West Virginia
Established 1892

Another proud department
"orders American" again!

Why do so many American Fire Truck owners re-order again and again?

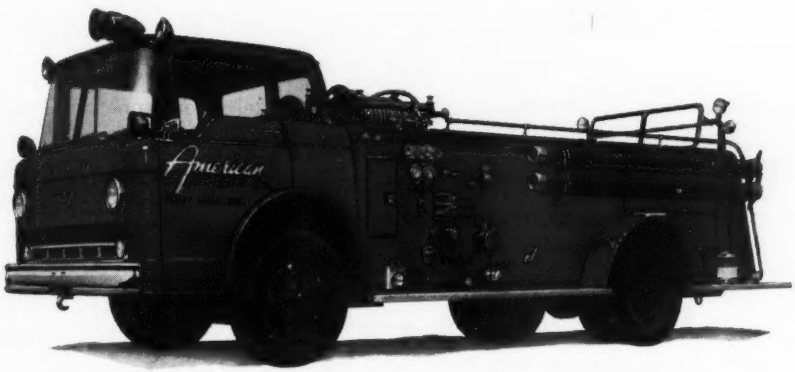
You'll find that satisfaction begins with your initial order at American, because you'll get superior hand workmanship and better engineered features . . . *even though you don't specify them at the time of purchase!*

Of course, you can also select the make and model of commercial chassis you want. Then you choose a dependable multi-stage midship or front-mounted Barton-American Pump — in the model that suits your needs. You enjoy the advantage of specifying many other field-proven and exclusive American features.

And when your truck is delivered, you'll be proud to show your community the superb craftsmanship and better engineering that enable you to fight fires most effectively.

Give your expanding department all the performance and dependability of an American Fire Truck. Once you do, we're confident you'll join the other owners who re-order *again* and *again* . . . because they were highly pleased and satisfied with their first American truck!

Choose either midship or front-mounted pumps — latest body styles and features.



Contact your nearest American representative for full details.

AMERICAN FIRE APPARATUS CO.

American

FIRE APPARATUS CO.

Main Office: Main Street Rd., Battle Creek, Mich. Plants at: BATTLE CREEK, MICH., MARSHALLTOWN, IA., STRATFORD, ONT.

This "General Ike" is a new 750-GPM Mack semi-cab, triple combination pumper. Unit is equipped with two top-mounted booster reels (each reel with 200' of ¾" booster hose and combination fog and straight stream nozzles), a 750-gallon booster tank and a wet water and foam proportioner.

"General Ike" takes over in Gettysburg

Named in honor of Gettysburg's first citizen, a Model B-85 Mack pumper has just gone into service for the Gettysburg, Pa., Fire Department.

Like all Mack apparatus, this new unit is five-star equipment—

- ☆ It's fast off the mark
- ☆ It's highly maneuverable... easy to handle
- ☆ It can pump for hours on end without a break or a breakdown
- ☆ It's rugged and safe
- ☆ It's the ultimate in dependability

From the finest, widest line of exclusive fire apparatus components known, Mack can custom build the exact apparatus you require: in standard or cab forward design; with the transmissions and gear ratios for your terrain; with generous locker space; and with any extras needed to cope with severe climates or other difficult conditions. If your increasing fire-protection needs call for better-built, better-designed apparatus, call on Mack. Mack Fire Apparatus, Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

5838

MACK
first name for
FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM... SQUAD AND HOSE WAGONS... AERIALS 65' to 100'... COMBINATION LADDER TRUCKS

Here's why WOOSTER

MANGA-FORGE COUPLINGS

pay off in extra long life!

Manga-Forge couplings have the forged strength of a special manganese-bronze alloy . . . an alloy that also provides both an abrasion and corrosion resistance so important to fast, smooth operation.

In addition, these structurally engineered couplings give you added strength where it's most needed . . . **in the hose bowl.** Extra reinforcing rings keep this coupling from going "out-of-round" under impact and external pressures and provide a skid surface to protect the coupling body.

Finally, good design prevents coupling from slipping, creeping or blowing off at any fire pump pressure.

For the most durable coupling, specify Manga-Forge or use this description!

"Couplings to be forged from a manganese-bronze alloy, with reinforcing rings located at the mid-section of the hose bowls. Three rocker type lugs on the male and swivel with Higbee indicator."

WOOSTER BRASS DIVISION

THE FYR-FYTER COMPANY • WOOSTER, OHIO

"THERE'S NO SUBSTITUTE FOR THE BEST MEN

...OR THE FINEST RADIO EQUIPMENT"

Maximum fire protection demands maximum effectiveness. Your firemen—dependable, able, and ready at a moment's notice—must have equipment of the same qualifications. Every one of the parts that go into your 2-way radio must be the finest available . . . must be guaranteed for long life . . . must keep the radio working in all emergencies. No wonder 3 out of 4 of the nation's radio-equipped fire departments depend upon Motorola 2-way radio and HANDIE-TALKIE® radiophone.

In New York, Miami, Los Angeles, Chicago . . . and practically every other leading city and countless large and small communities . . . rugged Motorola radio is proving that it is engineered to give the most dependable 2-way communications.

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FIRE
ENGINEERING
THE JOURNAL OF THE FIRE PROTECTION PROFESSION SINCE 1877

VOL. 111, NO. 4 APRIL, 1958

Lessons From a Second "Triangle"

"This area stinks. It is a fourth-rate, shabby, deplorable neighborhood. There is no good housekeeping here. What they need is cleanliness to make working atmospheres safe!"

So thundered New York's Fire Commissioner, Edward F. Cavanagh, Jr., as he gazed upon the blackened ruins of the old five-story loft building in lower Manhattan which spawned the fire on March 19 that brought death to 24 persons, 18 of them women—a tragedy which followed hard on the heels of another fatal incident only a few blocks away in which two firemen and four fire patrolmen were killed (FIRE ENGINEERING, March 1958).

In the main there was nothing particularly new or unusual in this latest holocaust. It followed closely the pattern of the Triangle Shirtwaist nightmare of 1911 in which 145 garment workers perished: Careless housekeeping; delayed notification of the fire department; large unpartitioned area involved; rapidly spreading blaze; panic induced by smoke and flames, and inability to locate exits; also, both occupancies were distinguished by lack of sprinklers and automatic fire detection and notification systems which have been recommended for such risks for years.

The Triangle fire victims did not die in vain. The catastrophe resulted in the adoption of the (then) most stringent set of factory laws for New York State which the country had ever seen—statutes which with all their loopholes, have served well until the present, as safeguards against similar disasters in the garment and allied manufacturing trades.

Property owners and tenants of many of the old structures—there aren't many new manufacturing buildings in the trea—differ with the Commissioner's caustic condemnation. But the latter, backed by the Mayor, has intensified inspection efforts, concentrating more units in the district, and turning up more violations, more risks. Even as the proposed new fire prevention bills went to the City Council, the Commissioner announced that the department's stepped-up inspection of the area (between Chambers Street and Washington Square) had resulted in the serving of 784 violation orders.

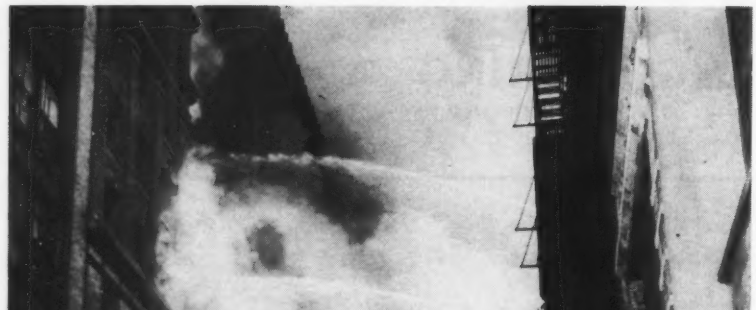
The end is not yet. Although this latest debacle is no longer headline news it has set in motion still more incentive, more machinery for ferreting out fire hazards and curbing or eliminating them. In this respect, the sacrifice of these latest victims may not have been in vain.

What about other municipalities? They may not have the same type or volume of fire risks posed by New York's vast garment industry, but they do have ancient buildings occupied by businesses for which the structures were never intended. Commercial buildings have become industrial occupancies. One fire chief of an Eastern city discovered, upon inspection, that a concern executing defense goods had installed a high-pressure boiler upon the unreinforced floor of what was originally a light commercial structure. Worse, several hundred persons, mostly women, had been engaged to work in the occupancy. The head of this firm pleaded "defense contracts" as a reason why he could flout safety measures.

Look over "Main Street" of almost any municipality. Note the transition that has occurred in occupancies: the empty and delapidated in some districts, the rehabilitated and "streamlined" in others. As one chief expressed it, "As fast as we try to remove old hazards over the years, we encounter new ones. When times are hard, companies seek out low rentals and expect us to put up with their violations of all sorts of safety regulations. When times are flush, manufacturing or commercial space is at a premium, and what were vacancies overnight are occupied by all kinds of enterprises. And, too, we're expected to condone violations under the excuse that 'we haven't got time to make the improvements.'" Expediency—how many crimes are committed in thy name!

What happened in New York City may well be duplicated—perhaps under different conditions, in other cities. The number and degree of these tragedies may well depend upon the extent and degree to which an enterprising fire service, backed by an enlightened public and judiciary seek out, locate and eradicate these "high hazard risks."

Roi B. Woolley



Heavy streams are directed into burning loft building from every vantage point in the rear (Mercer Street). Extreme depth of structure limited penetration. Men of Ladder 20 are shown

Panic Piles Up the Dead in New York Loft Fire

24 garment workers victims of fire and explosion in Manhattan's high hazard district . . . nets save several

AN EXPLODING OVEN in the premises of the SGS Textile Printing Company on the third floor of the five-story loft building at 632 Broadway, Manhattan, on Wednesday, March 19, started a fire in which 24 persons lost their lives. Fifteen others were injured.

In many ways the tragedy was reminiscent of the Triangle Shirt Waist holocaust of March 25, 1911, which claimed 145 dead. Both involved garment workers; both occurred at about the same time of day; both were due to gross carelessness, and in both, panic played its villainous role in the swift, stark drama.

The old building which saw this latest disaster was five stories in height, measured 35 feet front on Broadway and extended nearly 200 feet through to Mercer Street on the rear. Like so many venerable structures of the area, it was "built to burn."

The first floor, basement and subbasement were occupied by the Manhattan Plumbing Supply Company; the second floor by the Markoff Hatt Company; the third floor by the SGS Textile Printing Company; the fourth floor by the Monarch Underwear Company and the top floor by the Davan Textile Company.

The walls of the building were brick, 24 inches thick in the lower portions and 16 inches thick in the upper. Joisted floors on wood girders were supported on iron columns. The roof was of built-up tar and gravel construction.

Adjoining on both sides were eight-story structures of a slightly later architectural period. Windows of these buildings overlooking the fire building were protected by iron and tin-clad shutters.

Within the ill-fated building a stairway at either end led from the first floor to the roof. Both were enclosed in shafts constructed of metal lath and plaster. Elevators were located at front and rear, the one in front enclosed in a brick shaft, the other by wood and glass.

An important contributing factor to the rapid spread of the flames were large thick glass skylights measuring approximately 10 by 20 feet. These were located about the center of the long narrow floors, originally to provide light from above. Later they were covered over with metal sheathing and lath and plaster to provide more floor space. Once the fire had gained sufficient heat, the glass fell apart and the flames spread unchecked upward from the third floor through the roof. The fact that this heavy glass practically disintegrated attests the high heat generated by the fire (ordinary glass melts at about 1500 degrees F.).

At the time of the fire there were reported to be 66 persons in the building, 39 of these being employees of the underwear firm. All of the dead were from among this personnel. Occupants of the third and lower floors had little difficulty in reaching the street; four men on the top floor used the staircase to the roof from which they were removed by ladders.

Started in curing oven

It is established that the fire started in a curing oven used to dry material that had been newly printed with designs. The oven measured 10 feet high, 8 feet wide and 10 feet deep, and was heated by gas. It was disclosed at post-fire hearings held before Fire Commissioner Edward F. Cavanagh, Jr., that there had been a previous fire in this fixture only a short time previously. This fire was said to have been extinguished by employees using portable extinguishers and pails of water. However, no report was ever made to the fire department.

From the evidence it would appear that employees (there were said to be three officials of the textile printing concern on the floor) attempted to extinguish the second fire when it flashed, but this time they were not so fortunate. Following the burst of fire in the oven, an explosion ensued, which was felt through the entire building and caused severe burns to the hands of one of the men. As the fire spread, feeding on the combustible material and along the dust-covered ceiling, the men fled. The shock coming on top of the smoke which filtered into the upper floors, added to the fears of employees and helped precipitate the panic.

The oven blast is believed to have blown open an exit door leading from the stairwell on the third floor, providing additional draft for the fire. Flames roared through the long, narrow, undivided third floor "like in a wind tunnel," as one witness expressed it.

Delayed alarm costly

There is confusing evidence about the time lag between discovery of the fire, the explosion and the sounding of the alarm. The building lacked automatic fire alarm notification and extinguishment systems. The only alarm system was comprised of gongs, actuated by pull boxes located on each floor of the building. Some witnesses reported hearing gongs, others claim there was no such warning.

The fire department's Manhattan Central Communications Office received the first notification at 3:51 p.m. from Box 342. Almost at the same time a neighboring box (362) was received and within a minute more, six telephone alarms flashed on the phone board.

Engine Company 13 and Ladder Company 20 from their quarters at 155 Mercer Street less than a block distance, arrived within moments; the chief of the Fifth Battalion (Theil) came in one minute later, closely followed by the chief of Division 1 (Mackey).

The speed with which the fire spread before arrival of fire companies is indicated by the fact that notwithstanding this prompt response, people were at windows and on ledges preparing to jump from the fourth floor; and the third floor appeared fully involved in flames, with very heavy smoke conditions above.

The terse, laconic "preliminary" report by the Fifth Battalion received at headquarters said, "Fire at 623 Broadway; five-story brick; 25 x 90 vacant (this was revised later); fire third floor . . . using all hands . . . doubtful if will hold . . . exposures (1) street; (2) eight-story brick 50 x 100; (3) rear, street; (4) eight-story brick 50 x 100."

It is said firemen of Engine 13 could hear the screams of the frightened women on the fourth floor as they left their station. The first-arriving firemen saw several women all screaming in panic on the fourth-floor window ledge. They implored them to wait until they could set up a life net. Disregarding the pleadings, three women jumped to the sidewalk. Miraculously, none of these was killed but all were critically injured.

Two caught in net

At least two other jumpers were caught safely in the net. Another woman who lost her grip as she was attempting to get on a ladder, fell and landed on the rim of the net. Her fall was partially broken by Edward Wine, a volunteer truck driver, who was severely injured himself. The net was put out of action.

Firemen took lines into the building and endeavored to fight their way up the stairways to reach victims. Some occupants of the smoke-filled structure were located and removed by these men; others were taken down ladders quickly thrown against the building, front and rear. According to fire officials, had those who jumped only waited a moment they could have been saved.

Search for bodies goes on. Deputy Chief Joseph Mackey, 1st Division, points out to Fire Commissioner Edward F. Cavanagh, Jr. where victims piled up on fourth floor of fire-gutted loft. Firemen in photo are unidentified

Great confusion and panic raged among occupants of the fourth floor. The smoke grew so heavy that it was impossible for victims to see the exits. Twenty-two died on the floor from suffocation and flames; two succumbed later in Bellevue Hospital.

Ten bodies were found on the fourth floor beneath work benches of the underwear company, by fire fighters who were able to enter the floor about an hour later. Five bodies were huddled together at a rear window on the Mercer Street side; and four bodies were piled on top of each other at the head of an unburned staircase on the same floor. The other dead were scattered about the premises. By 9:00 p.m., 23 bodies had been recovered. Ambulances which responded in numbers sped the injured to various hospitals.

By a freak of fate, two persons, a man and a woman, survived the fire. The woman hid most of herself in a large metal storage box where water from hose lines kept the container sufficiently cool to save her. She suffered severe burns about the extremities. The man buried himself beneath fallen debris and crawled out when the fire was quenched. He lived.

Even before the wreckage had cooled, an investigation was instituted by the fire department to determine the cause of the disaster and whether or not any of the city codes had been violated. At the insistence of fire officials headed by Commissioner Cavanagh, Mayor Robert Wagner has introduced into the city council a slate of eight new fire prevention laws designed to require added safety precautions and to bring factories under the

What firemen are up against! Violation uncovered almost across the street from fatal loft fire site as firemen intensified inspection efforts to clean up what Commissioner Cavanagh termed a "Fourth-rate, shabby, deplorable neighborhood"

same fire regulations as apply to other types of commercial structures. These call for:

1. Sprinklers in all factory buildings four stories high or more in which more than 50 persons are employed above the street floor

2. Fireproof partitions on all floors used for manufacturing where the floor is 150 feet long or wide, or more; the partition would have to be able to resist fire for at least an hour, and would have fireproof doors

3. Red exit signs lighted by bulbs of at least 75 watts, and an auxiliary power supply for these signs in case of failure of the regular power

4. Removal of glass sections of floors, to be replaced with the same material as is in the rest of the floors

5. Roof skylights over stairwells. In the event of fire, firemen would break these skylights and permit heat and gases to escape, keeping the stairways usable for evacuation

6. Technical changes in the labor law by tightening entrance and exit requirements in all city factory buildings

7. Inspection at least every three months by an approved fire protection agency of any pumps used in building to provide water for sprinkler systems

8. Stoves, ranges, ovens or other heating devices in new installations to be placed only on the top floor.

(The published recommendations made no reference to drilling or training personnel, use of warning signs in different languages or of automatic fire detection and notification systems; some of these essentials are understood to be presently covered by existing regulations—Editor)

Chronology of Response

Wednesday, March 19

3:51 p.m.—Box 342, Broadway and Houston Street: Engines 13, 30, 33, 55; Ladders 20, 9; Rescue 1; Chief of Division 1, Battalions 2 and 5.

3:56 p.m.—Second alarm (via radio) Box 342: Engines 7, 17, 24, 31; Ladder 3. Relocating: Engines 213 to 33, 26 to 30, 256 to 31, 203 to 7, 221 to 17; Ladders 18 to 9, 7 to 3.

At the same time Chief Division 1 requested at least three public ambulances and notification of police and disaster unit, Bellevue Hospital.

4:08 p.m.—Third alarm (via radio): Engines 5, 12, 18, 27; Ladder 8; Chief Battalion 4; also Ambulance 1 and Field Communications 1. Relocating: Engines 21 to 5, 34 to 18; Ladder 15 to 8.

4:22 p.m.—Fourth alarm (via radio): Engines 9, 14, 15, 28, 32; Ladder 5. Relocating: Engines 205 to 15, 209 to 9; Ladder 12 to 5.

4:35 p.m.—Fifth alarm (via radio): Engines 1, 3, 16, 207, 216; Ladder 1. Relocating: Engines 44 to 16, 40 to 3, 54 to 1, 219 to 207, 237 to 216.

6:15 p.m.—Special call Fuel Wagon 12.

6:39 p.m. — Special call Searchlight Unit 24 (Queens).

The staff which handled communications at the Manhattan Central Station included: First crew—Supervising Dispatcher Finneran; Dispatchers Gallagher and Krasnopolski; Firemen (acting dispatchers) Matthews and Greenidge; Telephone Operator McLaughlin. Second crew—Supervising Dispatcher Cruses; Dispatchers Ansorge, Garcia and Pearlman; Firemen (acting dispatchers) Miller, Raney, Umlauf and Cruse; Telephone Operator Roethlein. □□

Acknowledgement: Thanks are extended Fire Commissioner Edward F. Cavanagh, Jr., and fire department officers and men including the photo unit (Hellriegel, Heffernan, Johnstone and Lind), for their aid in the preparation of this report. The assistance also of the New York Fire Insurance Rating Organization was especially helpful.

Shallow Draft Fire Boat

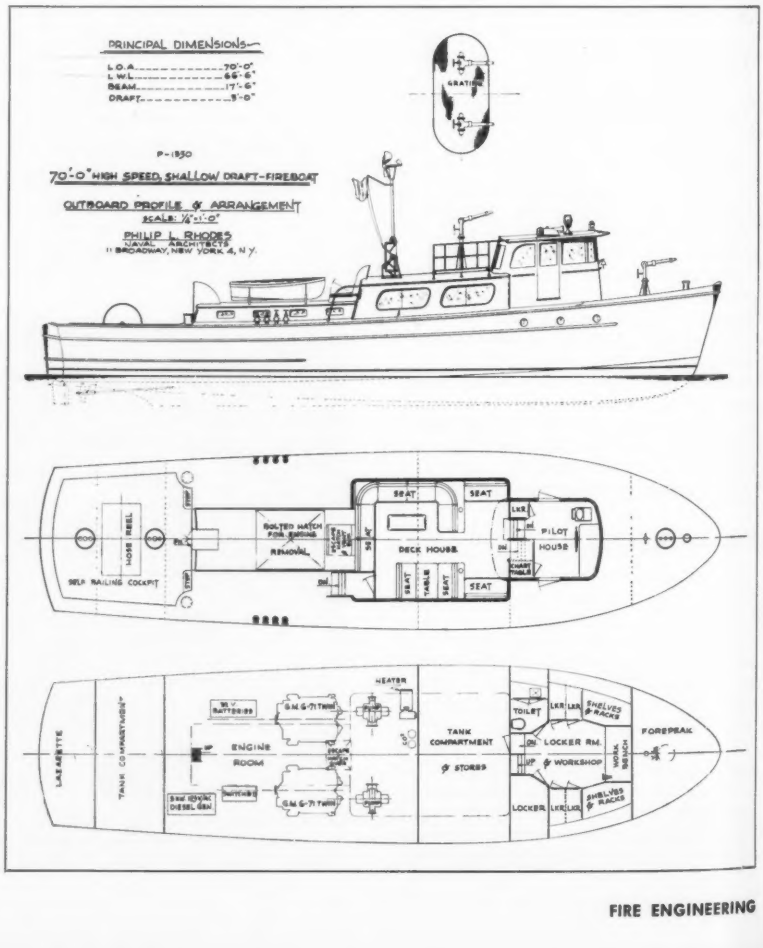
Information reaching FIRE ENGINEERING has indicated a growing interest in the high speed, shallow-draft type of fire boat for use in fire departments having substantial harbor and coastal areas, as well as inland rivers.

The latest craft to come within this category is shown here. Termed by its designers, the *Fire Fighter*, the boat measures 70 feet overall, with a water line length of 66½ feet; 17½-foot beam; and a 3-foot draft. It is powered by two General Motors 6-71 twin diesels driving twin screws and developing a working speed of 24 to 25 mph.

Monitors located on the bow and aft of the pilot house are supplied by two fire pumps rated at 1,000 gpm each. In addition, manifolds provide four hose connections on each side of the broad after deck house and a hose reel is mounted on the stern. Foam generators are provided for fighting oil fires.

The hull is constructed of all-welded steel metalized inside and out with sprayed-on zinc. All deck superstructures are of aluminum. Emphasis has been placed on strength with lightness, economy of original cost and maintenance.

The craft is a development of a type designed by Philip L. Rhodes, Naval Architects and Marine Engineers, 11 Broadway, New York 4, N. Y., and widely used as a fast personnel boat. It is said to be very seaworthy and capable of operating in far rougher water than is normally encountered in navigating inland and coastal areas.



—Santa Monica F. D. photo by Chief McDade

Santa Monica's modern Headquarters contains rescue unit, 1250-gpm pumper, 85-foot aerial and chief's car

Santa Monica Initiates 60-Hour Work Week

By CHIEF C. N. CARRELL

A THREE-PLATOON, 60-hour work week was instituted by the Santa Monica, Calif., Fire Department on July 1, 1957. The new system is the result of a two-year experiment in which three chief officers participated. The assignment worked so well it was decided the whole department could be improved by its adoption, both in lessening the work week and in more efficient use of manpower.

Among other advantages, the new system permits one-third of the personnel to be on vacation at one time, which means the entire department may take vacations during the summertime when schools are out and vacation resorts provide fullest opportunities.

Efficiency and administration are improved in that: 1. No day-off scheduling is required and minimum shuffling of men is necessary; 2. With very little exception the same officer and crew trains and works together without interruption.

The latter promises additional dividends in perfection of training and drills and the opportunity afforded each man to learn the characteristics of his fellow crew members; also, difficulties which arise may be more easily pin-pointed and corrected. Up to the present time no problems have arisen and none is expected, although it may be too early to judge.

Prior to July 1, 1957, the 78 fire fighters of Santa Monica worked four alternate 24-hour shifts and then had one off. This constituted a 67.8-hour week. The department was divided into two platoons or shifts with 39 men on each; 10 or 12 of the men were always off, sick, or on vacation, leaving 27 or 29 on duty. Under the new system 27 men are always on duty—four men in each of three engine companies, five in each of two engine companies and four on the aerial ladder.

Dividing the department into three platoons provided 26 men on each shift, but allowed none for sick leave absences. Three men were added, one on each shift, which provides an extra man for fill-in purposes. Officers and engineers were added to staff the third shift and it is expected these additions and promotions will increase the budget about 5 per cent a year.

Vacations and other leaves are absorbed in this system as follows: Fire fighters are required to work an average of 60 hours per week; this amounts to one hundred thirty-one 24-hour shifts per year. Men are assigned 24 hours on and 48 hours off, which if uninterrupted, would total 122 shifts and equal a 56-hour week. In actual practice the system operates as follows: Each platoon works three 24-hour shifts separated by two 24-hour off-tours; at the end of the third duty shift, four off-tours are scheduled.

In order to average 60 hours per week, each man must put in nine additional shifts per year at the convenience of the department. This will occur when someone is on vacation or sick, at which time the man working his extra shifts is assigned on an alternate 24-hour basis. By multiplication of this arrangement, one whole shift can be on vacation at one time, thus permitting the entire department to go on vacation in two or three months if desired.

Men and officers of the Santa Monica Fire Department feel that this is one of the most advanced personnel and management steps ever to be taken by the department. No credit is claimed for origination of the system as it has been in successful operation in the City of South Gate for several years. □□

Work Schedule Chart
Month of December, 1957

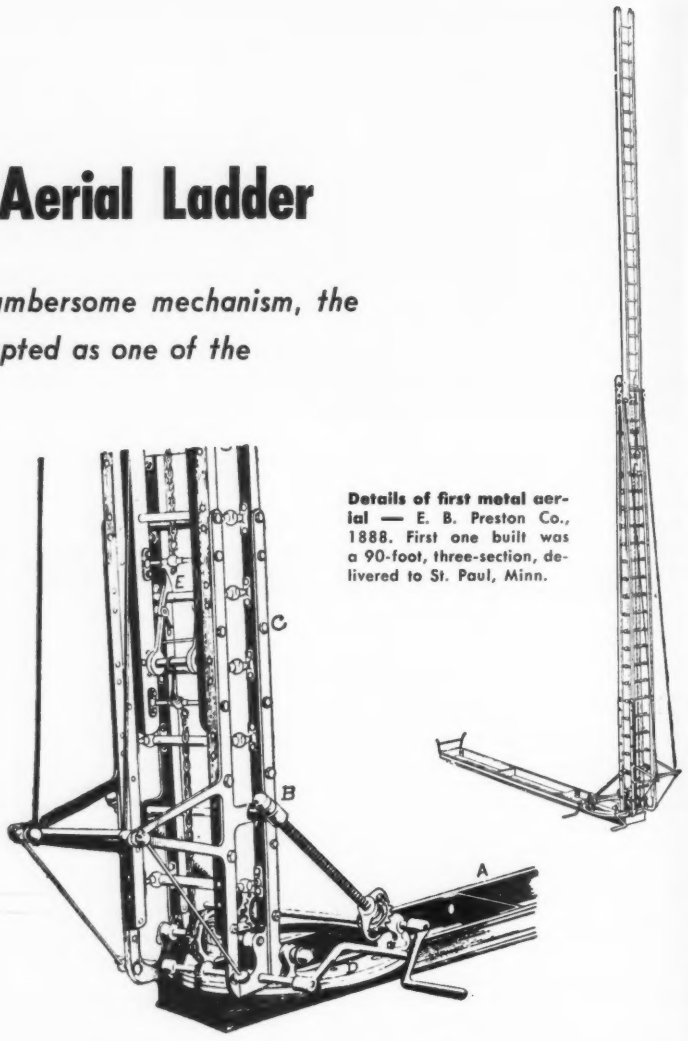
Day	*Platoon*	*Day*	*Platoon*
1	A	16	C
2	B	17	A
3	A	18	C
4	B	19	A
5	C	20	B
6	B	21	A
7	C	22	B
8	A	23	C
9	C	24	B
10	A	25	C
11	B	26	A
12	A	27	B
13	B	28	A
14	C	29	B
15	B	30	A
		31	B

The Legend of the Aerial Ladder

From what was a complicated, cumbersome mechanism, the aerial ladder has come to be accepted as one of the most widely used, scientific "tools" of the fire service

By CLARENCE E. MEEK

Honorary Battalion Chief,
New York Fire Department
Librarian, Fire College



Details of first metal aerial — E. B. Preston Co., 1888. First one built was a 90-foot, three-section, delivered to St. Paul, Minn.

THE STORY OF AERIAL LADDER apparatus is not one of startling innovations, but rather a narrative of slow, but steady development, with a few weird and tragic side excursions.

Daniel D. Hayes, a former volunteer fireman of New York City, who had made the seven months voyage around Cape Horn in 1866 to deliver an Amoskeag steam fire engine to the San Francisco Fire Department, remained in California to become a machinist for that department in the Corporation Yard. To Hayes belongs the credit for having designed the first successful mechanically raised turntable ladder.

A United States patent was issued to Hayes on February 23, 1868 for the invention described as the "Hayes Hook & Ladder Truck and Fire Escape Combined." The term "aerial ladder" did not come into use until several years later and is strictly American, the foreign designation being "turntable ladder," or simply "TL," in the abbreviated nomenclature so popular abroad.

An advertisement by D. D. Hayes, 1624 Pacific Street, San Francisco, in the December 13, 1879 issue of *Fireman's Journal* (the first ad we can find of the Hayes ladder) states that "the Hayes truck has been in use in the San Francisco Fire Department for nearly seven years," which would establish the first sale of the Hayes aerial as about 1872. Annual reports of the S. F. F. D. of the period show first-class (85-foot) Hayes aerials at No. 1 and No. 2 Truck Companies, built by Kimball Mfg. Co. and H. M. Black Co., respectively.

Hayes' plan of operation was to license apparatus builders to use his designs on a royalty basis. It was not until 1877, after five Hayes trucks had been sold to Pacific Coast cities that Mr. Hayes came back to New York to interest eastern manufacturers in acquiring licenses under his patent.

In the meantime some promoters had secured rights to sell an Italian-designed extension ladder and had received a contract from the New York Board of Fire Commissioners for four of the ladders. This was the Scott-Uda aerial, a ladder in eight sections extending to 97 feet and raised by crank handles engaging cogs on a movable carriage attached to a truck.

Scott-Uda tragedy

The four Scott-Uda aerials were delivered to New York in the summer of 1875 and after a number of tests had been made, the department arranged a public demonstration of one of the ladders on September 14, 1875. A great crowd had assembled at Tweed Plaza, the ladder erected, and seven men had climbed to different heights, when the upper sections broke off, hurling Chief of Battalion William H. Nash and Firemen Philip J. Maus and William Hughes more than 70 feet to the pavement. The tragic deaths of these three men ended the experiments with the Scott-Uda and, because of public sentiment, delayed the adoption of aerial ladders by the Fire Department of New York for ten years. The four Scott-Udas were never put in service and were broken up at the department shops in 1884.

When Mr. Hayes came East in 1877 he made arrangements with Buckley & Merritt, apparatus builders of New York, to market his aerial and an 80-foot ladder was constructed for demonstration. We find this report in the April 6, 1878 issue of *Fireman's Journal*: "An exhibition of the Hayes (California) ladder was given at department headquarters Tuesday morning . . . and was a great success. The ladder is 80 feet long, but others of the same pattern 110 feet long have been built. Mr. Hayes, the inventor, now a resident of San Francisco, was for-

merly a member of the New York Fire Department. His ladder is extensively used in the departments of the Pacific Coast. The ladder exhibited Tuesday was built by Buckley & Merritt and is the sixth truck built under the supervision of the inventor."

Another news item of August 16, 1879 reports a demonstration of the Buckley & Merritt apparatus in Brooklyn, and in September the ladder was exhibited in Washington at the convention of the National Association of Fire Engineers (now the International Association of Fire Chiefs).

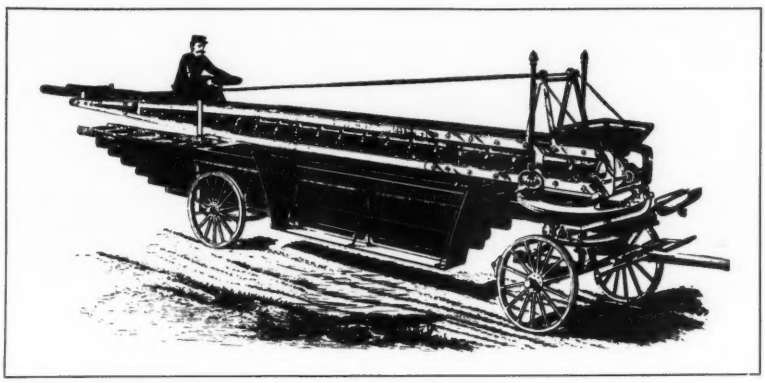
Hayes ladder in Brooklyn

An entry in the *New York Fire Department Telegraph Journal No. 36* on December 27, 1879, records that the Hayes truck was placed in service at Ladder Co. No. 1 that day "for trial." However, the department did not purchase the apparatus and it was later acquired by the Brooklyn Department. Sentiment against aerial ladders was still too strong in New York.

The turntable extension ladder idea took hold slowly and during the ten years following the first use of the Hayes in San Francisco, only seven aerials were put in service—six Hayes and one built by the Aerial Ladder Company which was installed at Ladder Co. 8 in Boston on March 28, 1876. The Boston ladder is mentioned in one account as the Scott-Uda type.

During this first decade several inventors applied for patents, and at the 1875 convention of the National Association of Fire Engineers, Messrs. Henry Lyles, George Skinner and D. F. Haasz explained their several designs, but that seems to be as far as they got with their inventions.

The LaFrance Fire Engine Company, which began operations in 1875, purchased the Hayes patents in 1883 and all of the Hayes aerials subsequently sold were constructed by them. The first aerial put in regular service by the New York Fire Department was shipped from the LaFrance plant in Elmira on May 12, 1886 and was installed at Ladder Co. 3 in 13th Street on June 5th. The other one purchased at the same time went to Ladder 16 at Headquarters. These were 85-foot ladders, and the next one purchased was a 94-foot job.



Early Babcock aerial. The first one was sold to New Haven, Conn., in 1887

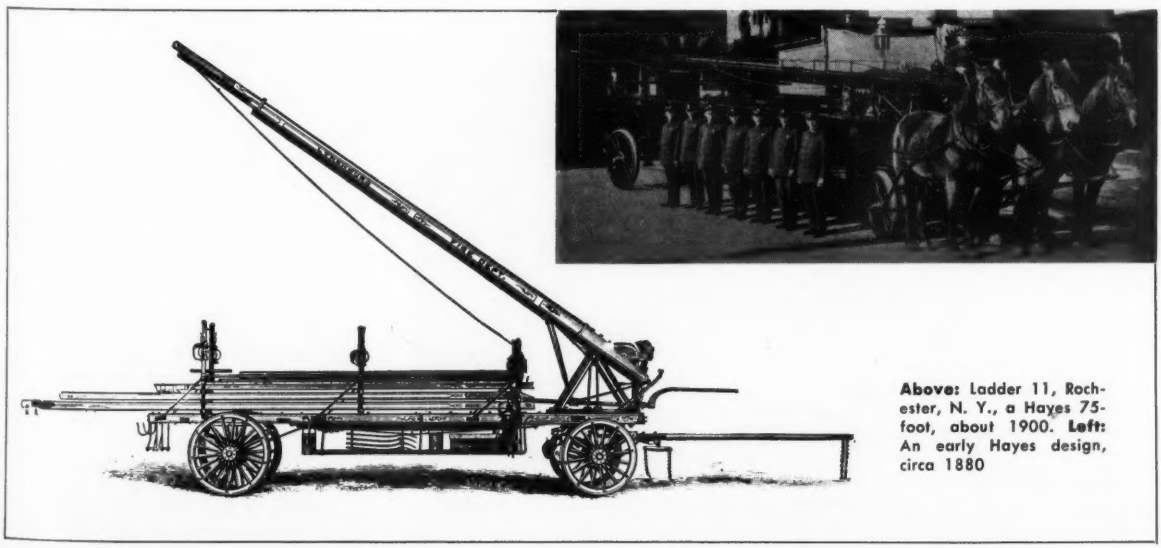
The "Babcock"

One of the men working on ideas for aerial ladder mechanisms in the early 1880's was E. Steck, superintendent for the Fire Extinguisher Mfg. Co. of Chicago, successors to the Babcock Company. A patent was granted to Steck on November 11, 1884, and his first aerial, which was named the "Babcock," was built for demonstration and advertised in the July 24, 1886 issue of *Fire and Water Engineering*. It was not until about a year later that a sale was made —to the City of New Haven, Conn., where the Babcock was delivered in July of 1887 and demonstrated to officials from New York, Brooklyn and some New England cities. *Fire and Water* reported on July 30, 1887: "The authorities of New Haven were the first to take the responsibility of giving an order for this untested piece of apparatus."

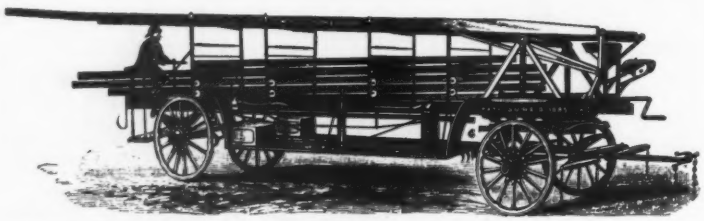
The Hayes ladder was raised by a single worm screw turned by a removable handle extending forward of the turntable and necessitating the unhitching of the horses before the ladder could be elevated. Steck's mechanism used vertical worm screws at each side of the ladder base and was operated manually by crank handles and bevel gearing. The Babcock ladder was mounted low on the frame and the tillerman was placed topside, greatly improving visibility over the Hayes design, which had the tiller seat under the big stick.

The Babcock became one of the three successful and outstanding aerials of the pre-spring-hoist era, the others being the Hayes and Dederick. In the two years following the delivery of the first Steck-designed Babcock to New Haven, the Fire Extinguisher Mfg. Co. sold 24 of these aerials and sales steadily increased each year until the introduction of the spring-hoist type made the all-manual ladders obsolete.

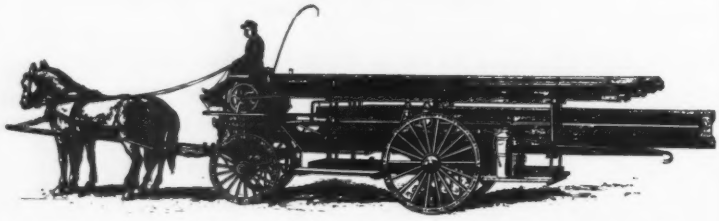
While an early report of the activities of D. D. Hayes referred to ladders of more than 100 feet in extended length, we cannot find any record of these, and



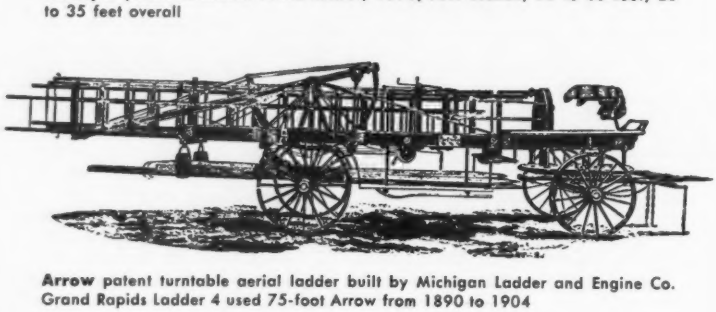
Above: Ladder 11, Rochester, N. Y., a Hayes 75-foot, about 1900. **Left:** An early Hayes design, circa 1880



Preston & Co., Chicago—1885; same design as the Hayes



Gillespie patent turntable aerial ladder, 1890; Four section, 65 to 85-foot; 25 to 35 feet overall

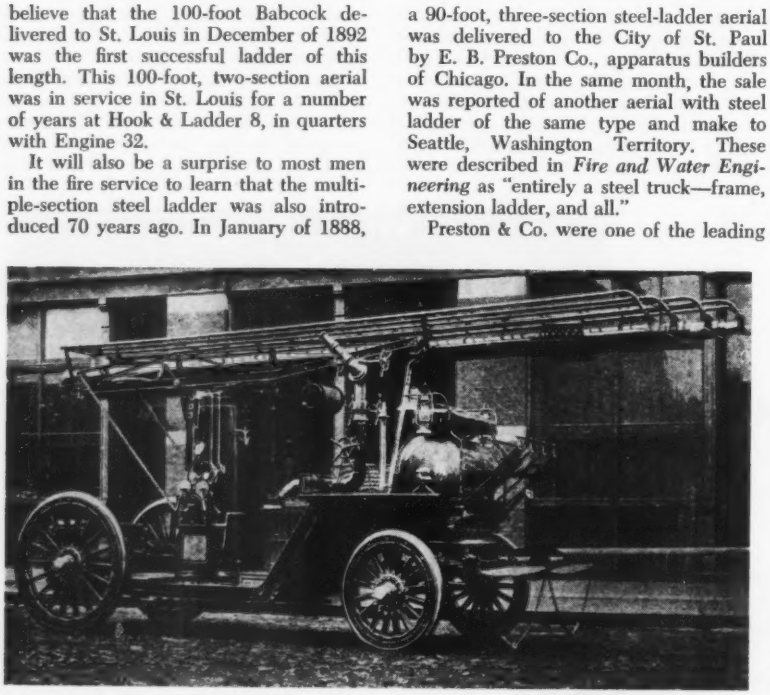


Arrow patent turntable aerial ladder built by Michigan Ladder and Engine Co. Grand Rapids Ladder 4 used 75-foot Arrow from 1890 to 1904

believe that the 100-foot Babcock delivered to St. Louis in December of 1892 was the first successful ladder of this length. This 100-foot, two-section aerial was in service in St. Louis for a number of years at Hook & Ladder 8, in quarters with Engine 32.

It will also be a surprise to most men in the fire service to learn that the multiple-section steel ladder was also introduced 70 years ago. In January of 1888, a 90-foot, three-section steel-ladder aerial was delivered to the City of St. Paul by E. B. Preston Co., apparatus builders of Chicago. In the same month, the sale was reported of another aerial with steel ladder of the same type and make to Seattle, Washington Territory. These were described in *Fire and Water Engineering* as "entirely a steel truck—frame, extension ladder, and all."

Preston & Co. were one of the leading fire apparatus manufacturers of the period, and with the success of the Hayes Ladder as an incentive, they had entered the competition in 1885 after taking out Patent 319047 on some minor variations of the Hayes design and had advertised their product as "Preston's Patent Turntable Extension Ladder Truck—all the advantages of the celebrated Hayes truck with additional desirable improvements."



Champion pneumatic aerial water tower built by Fire Extinguisher Mfg. Co. Sold to Pittsburgh in 1904. The first one was sold to Chicago for $5,000

Hassle over patents

In 1886 William F. Hyde of Chicago assigned to Preston his Patent 336519, which covered some improvements and which caused Preston to notify the Fire Extinguisher Mfg. Co. that the Babcock aerial was infringing upon the Preston patents. The Preston Company was then building aerials which copied both the Hayes and Babcock designs. Advertisements of both competing concerns were full of threats of lawsuits against purchasers of the other's product.

It appears that the Fire Extinguisher Mfg. Co. won out in this competitive battle. Preston dropped out of the picture, while the Babcock aerial maintained a leading place in the race until the end of the era. Probably the only steel-ladder aerials built by Preston were the two already mentioned.

Another multiple-section ladder extensively advertised around 1889-90 was the "Gillespie Patent Turntable Aerial Ladder Truck," with a four-section wood extension ladder, built by Warwick Machine Co., Warwick, N. Y. This was a short-wheelbase, non-tiller job measuring only from 25 to 35 feet overall from end of pole. We have not found this aerial listed in any available fire department reports of the period.

Michigan Fire Ladder & Engine Co., Grand Rapids, also had a non-tiller short-wheelbase aerial which they called the "Arrow Patent Turntable Aerial Truck." One of these was in service in the Grand Rapids Fire Department from 1890 to about 1905, when it was replaced at No. 4 with an American-LaFrance 85-foot, spring-hoist job which had the tiller seat under the main ladder, like the Hayes design.

The Gleason & Bailey Works, pioneer apparatus builders of Seneca Falls, N. Y., introduced the "Dederick Aerial" in 1895 and during the ten years which remained before the invention of the spring-hoist type, the Dederick became one of the three outstanding aerial ladders. The Gleason & Bailey Dederick was especially favored in New York because of fast-raising characteristics.

The Dederick was elevated by cables attached to raising arms hinged at the ladder base and extending half way up the sides of the bed section. The bronze cables passed from the drum, which was revolved by crank handles with link chain reduction drive, over the pulleys to the raising arms. The mechanical advantages of this hoist, with consequent ease and speed of elevation, made the Dederick a popular aerial.

Gleason & Bailey became part of the International Fire Engine Company

merger in the 1890's and the subsequent absorption of the International units by the LaFrance and American combination —in 1904—resulted in the eclipse of the Hayes, Babcock and Dederick apparatus by the new spring-assist hoist models.

Fox adapts foreign idea

After Charles H. Fox became superintendent of American Fire Engine Co., following the merger of 1891, he conceived the idea of designing a power-operated ladder mechanism and adapted a European design to construct the "Kaiser Pneumatic Aerial," which utilized stored compressed air as the power medium. The Kaiser was not put on the market and Mr. Fox later worked with his good friend, Chief E. F. Dahill of New Bedford, Mass., in perfecting the "Dahill Air Hoist." The Dahill hoist was designed particularly for application to the Hayes truck and was adopted by many cities.

While stored compressed air was the only practical power medium to use on horse-drawn apparatus, it had the disadvantage of requiring an air compressor in the station and of being limited in the number of raises which could be made without recharging the tanks. However, there is no record of any case where a ladder failed to be raised because of exhaustion of the air supply.

The introduction of motorized apparatus removed these specific arguments against air hoists, and the pneumatic-type Ahrens-Fox which was introduced in 1915, was manufactured until about 1938. A number are still in service.

In 1902 the Seagrave Company came out with a "manual spring-assist" mechanism which quickly revolutionized the aerial ladder part of the apparatus industry. The first Seagrave spring-assist used two coil springs as the initial lifting force, with a worm screw arrangement to complete the elevating job, and for lowering. Power was not applied to ladder extension or rotation in the spring-assist models.

F. S. Seagrave had established his business in Detroit in 1881, moving to Columbus in 1891, and had specialized in the building of ladder trucks and trussed ladders—a type of ladder-construction which was incorporated in the early Seagrave aerials. We believe the first aerials built by Seagrave were the two delivered to New York in 1902. These were similar to the Hayes in appearance, with tiller under the main ladder, and elevated by worm screw.

The spring-assist hoist introduced by

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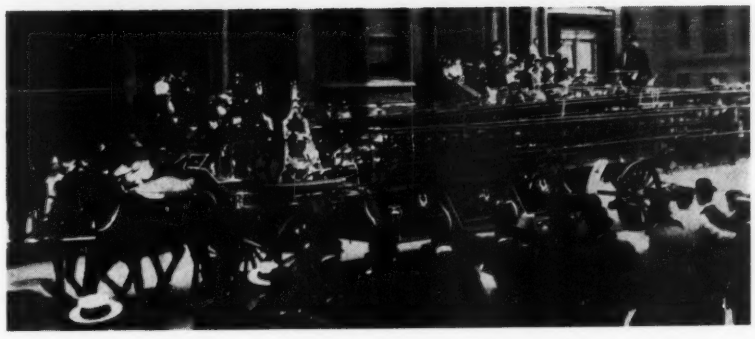

From top to bottom:

Ladder 28, New York, 1906—Seagrave spring hoist 75-foot

Ladder 8, New York, 1908—American LaFrance spring hoist 85-foot

Six-horse hitch, Ladder 1, Rochester, N. Y.—85-foot Hayes, circa 1900

Dederick 85-foot aerial, Ladder 21, New York, manufactured by Gleason and Bailey, circa 1895

Theory and Application of Wet Water

PART 3†

By Paul F. DeGaeta*
and Arnold A. Weintraub**

TO PRODUCE A STABLE EMULSION, as we have seen, it is necessary to add a "soap" to the water-oil mixture. Soap may be considered as the salt of a base and an organic acid, similar to other salts, such as sodium chloride or potassium nitrate. The formation of such salts involves the transfer of the metallic ion of the base to the non-metallic ion of the acid. The remaining compound is water, formed from the hydrogen of the acid and the hydroxyl group (OH) of the base. The equation below shows this exchange:

$$\underset{\text{base}}{NaOH} + \underset{\text{acid}}{HCl} \rightarrow \underset{\text{salt}}{NaCl} + \underset{\text{water}}{H_2O}$$

When the acid is a higher organic fatty acid (from 10 to 20 carbon atoms in the molecule), the salt produced is a soap. The process of converting the fatty acids to soaps is called "saponification." The equation below shows the formation of a typical soap:

$$\underset{\text{base}}{NaOH} + \underset{\text{stearic acid}}{C_{17}H_{35}COOH} \rightarrow \underset{\text{soap}}{C_{17}H_{35}COONa} + \underset{\text{water}}{H_2O}$$

Soaps, like other salts, are ionic in character and will dissociate in water solution, and because they are also colloidal, they are called "colloidal electrolytes." Upon ionization, the sodium or metallic atom will take on a positive charge and become the positive ion, or "cation." The rest of the molecule, containing the hydrocarbon chain and the organic acid group —COO, acquires a negative charge and becomes the "anion," and is that part which gives the compound its surface active properties. It has a hydrophobic (water repelling) group at one end of the long chain and a hydrophilic (water-attracting) group at the other. A typical soap molecule is shown in Fig. 12. Such compounds with a negative ion attached to their active groups are called, "Anionic surfactants," and include soaps, almost all of the detergents, and the more important wetting agents.

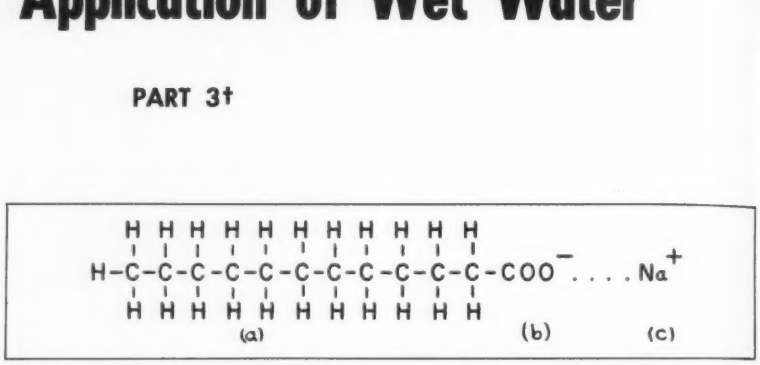

Fig. 12. Typical soap molecule: (a) Hydrocarbon chain of 10 or more carbon atoms; (b) Acidic (carboxyl) group which acquires a negative charge in water solution; (c) Metallic group which acquires a positive charge

Balance in the surface

Soaps are characterized by long, pencil-like molecules, consisting, as we have seen, of 10 or more carbon atoms in the chain. This structure imparts special properties to the molecules in regard to water. Thus we find that the hydrocarbon end of the molecule, being hydrophobic in nature, attempts to keep the entire molecule from going into solution. The other end containing the acidic group is hydrophilic and it tends to drag the molecule into solution. The result is that the molecule concentrates in the surface with its hydrophobic end sticking up into the air and its hydrophilic end down into the body of the water. It acts as both a polar and a non-polar substance at once. Orientation of soap molecules in the surface is shown in Fig. 13.

It is necessary, therefore, that a balance between polar and non-polar ends be reached so that the molecule is neither pulled entirely above the surface nor entirely below. This is called the "hydrophobic - hydrophilic balance." It has been found that hydrocarbon chains of between 10 to 20 carbon atoms seem to produce substances with surface active properties.

Practically all chemical substances may be divided into two classes: those soluble in water, and those insoluble. Surfactants, however, do not belong to either of these two classes. They comprise a third group in which the substances have properties unlike those in the other classes, most important of which is concentration in the surface, neither dissolving nor separating. Such properties are peculiar only to this class.

Because this is so, a soap may, for example, surround each oil particle in an oil-water mixture so that the long molecule is oriented, somewhat like those in Fig. 14, the polar end sticking into the water and the non-polar end into the oil drop. This collection of oriented molecules at the oil-water interface keeps oil from coalescing and settling out because, in effect, it is surrounded by a negative electric charge which is repelled by similar charges on the other oil drops. This process helps soap clean as it does because it enables oils and greases to be emulsified and carried away in the rinsing water. If solids are also present, the process is similar. The same orientation of molecules takes place and solid particles are dispersed throughout the liquid

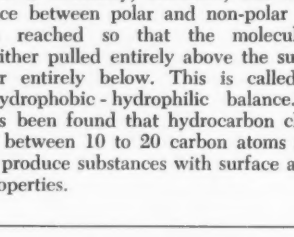

Fig. 13. Orientation of soap molecules in surface of water: (a) Hydrophobic end; (b) surface of water; (c) negatively charged end; (d) positively charged ions

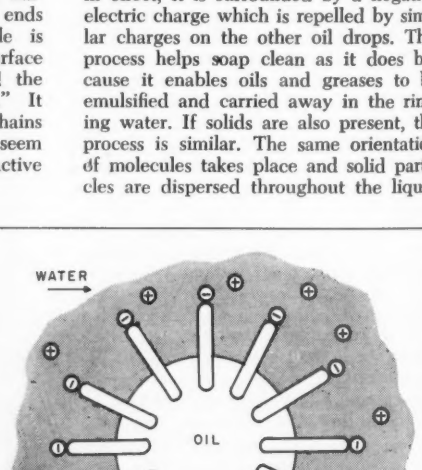

Fig. 14. Emulsifying action of soap. Long pencil-shaped soap molecules are oriented in the oil-water interface with hydrophobic ends dissolved in oil and ionic ends in water

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† The first and second parts of this article appeared in the August and December 1957, issues.

and carried away. In the case of solids, the mixture is called a "suspension" rather than an emulsion.

This process of removing dirt, grease, oils and solids, by a combination of emulsifying, solubilizing, decreasing surface tension, suspending solids, preventing coalescing, and rinsing away the mixture is called "detergency" and the substance is called a "detergent." Soap, of course, is the oldest and best known detergent.

Detergents

Practically all soaps, except those of sodium and potassium, are insoluble in water. This causes ordinary soap to have many drawbacks when used in waters of varying composition. In "hard water" containing calcium, magnesium and other metallic ions, a chemical reaction occurs in which sodium and potassium atoms of the soap are replaced by the other metallic atoms and the insoluble soaps formed are precipitated as a curd. The organic acid portion of the molecule, called the "carboxyl acid group," is the weak point in such reactions because of its affinity for the other metallic ions, and the fact that resulting compounds are insoluble. In a somewhat similar way, salt water as well as acidic water will cause formation of insoluble fatty acids.

For ages, substitutes for soap which would overcome these faults have been sought and only in recent years has progress been made. As a result of this search, a new group of compounds has been synthesized which outdo soap in many of its qualities and have none of its faults. In these compounds the organic acid group is so altered that it cannot precipitate as an insoluble soap or free acid. There are three ways to accomplish this. One way is to "block out" the organic acid group by tying it up in a chemical compound to prevent further reaction. Such a compound consists of a short hydrocarbon chain having a reactive group at either end. One end ties itself to the acidic group and the other end ionizes to carry a negative charge. Sulfonates are examples of this type and a typical "blocked carboxyl" surfactant is shown in Fig. 15.

A second method is to convert the acidic group to a hydroxyl (OH) group, which is characteristic of the class of compounds known as alcohols. The long chain alcohols are also called "fatty alcohols" corresponding with fatty acids. When the fatty alcohol is treated with sulfuric acid, the hydrogen of the alcohol is replaced by a sulfonate group, which is strongly hydrophilic. Fig. 16 illustrates a typical fatty alcohol sulfonate.

The third method is to attach a long hydrocarbon chain to a "cyclic hydrocarbon" like benzene and naphthalene. These molecules are in the shape of a hexagon and as such they lack the long chain structure necessary to give proper H-H balance. However, by attaching a hydrocarbon chain of about 12 carbon atoms to part of the ring and then sulfonating, a new compound is formed that possesses surface active properties. The hydrocarbon chain added to the ring

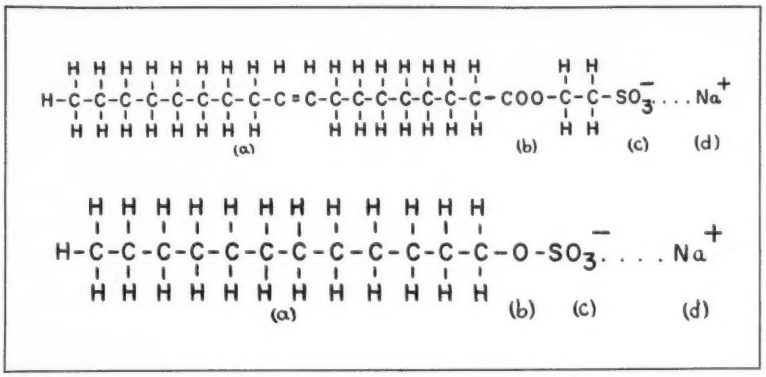


Fig. 15. (upper) Typical "blocked" carboxyl compound: (a) Hydrocarbon chain; (b) blocked carboxyl group made inactive; (c) sulfonic group which is negatively charged; (d) metallic group—positively charged

Fig. 16. Fatty alcohol sulfonate: (a) Hydrocarbon chain; (b) part of hydroxyl group; (c) sulfonate group—negatively charged; (d) metallic group—positively charged

structure is called a "side chain." The new compounds are called "alkyl aryl sulfonates" and are probably the most numerous surfactants on the market. Fig. 17 shows a typical alkyl aryl sulfonate.

The three types of surfactants just considered are all anion active surfactants and are the most commonly used as detergents and wetting agents. Another group of compounds in which the active portion carries a positive charge when ionized is also important, although possessing poor properties of detergency and wetting. In these compounds the chlorine atom carries the negative charge, while the long chain end carries the positive charge. Their chief uses are as agents to prevent accumulation of static charges, to disperse solids in liquids, and in germicidal preparations. They have little application in the fire service. A typical cationic surfactant is shown in Fig. 18.

We have considered so far two types of surfactants, both of which ionize in water. A third group coming into prominence, the members of which do not ionize at all, are called "non-ionic" surfactants. They are made up of a long chain hydrocarbon portion attached to a second chain consisting of units of two carbon atoms and four hydrogen atoms joined by oxygen atoms. This type of bond is called an "ether linkage" because it is characteristic of organic compounds known as ethers. Ordinary ethyl ether is an important member of this class.

The surfactants of this class do not ionize, but they derive their surface active properties from the fact that the ether linkages are weakly hydrophilic. When a number of these linkages are combined in a compound a proper balance between solubility and insolubility is attained, and the compounds show excellent wetting properties. They also possess some dictinct advantages over the others because they do not ionize. Thus they can be used freely in hard water and they will not react with calcium or magnesium ions. In addition,

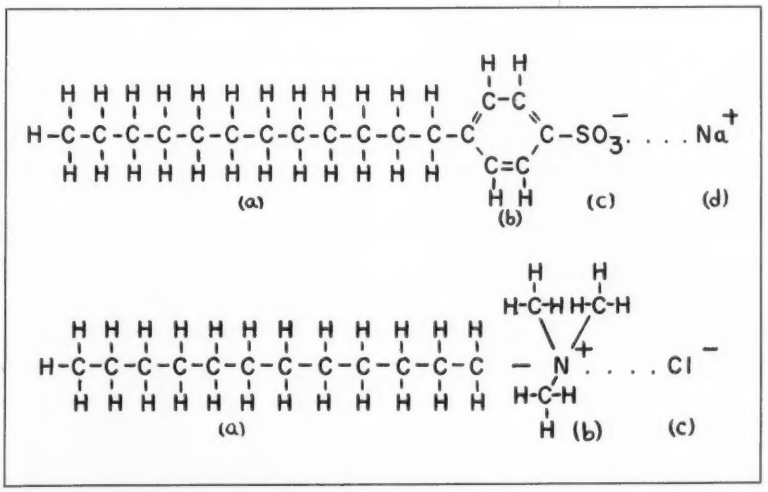


Fig. 17. (upper) Alkyl aryl sulfonate: (a) Hydrocarbon chain; (b) benzene ring (cyclic hydrocarbon); (c) sulfonate group—negatively charged; (d) metallic group—positively charged

Fig. 18. A cationic surfactant: (a) Hydrocarbon chain; (b) positively charged polar end; (c) non-metallic group—negatively charged

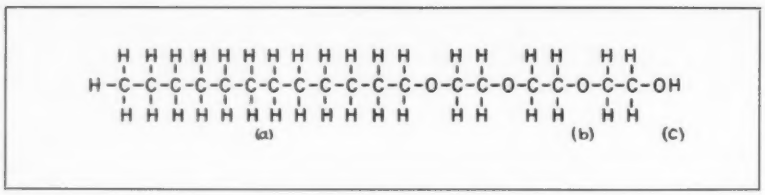


Fig. 19. A non-ionizing surfactant: (a) Hydrophobic long chain; (b) group of ether linkages; (c) hydrophilic end

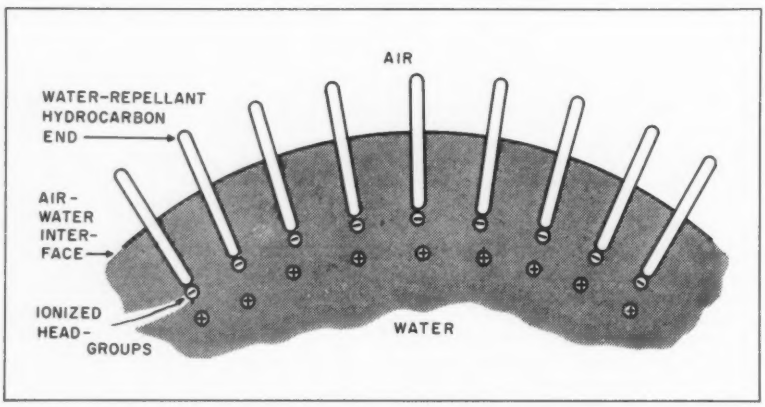


Fig. 20. Surface of soap bubble showing orientation of soap molecules

they may also be used in acidic, salt or alkaline waters. Fig. 19 shows a typical non-ionic surfactant.

Wetting agents

The primary action of these substances we have just considered is in the surface and from what we have said about detergents one may expect them to be good wetting agents. This is true, and it is a fact that soap and some other older detergents have indeed been so utilized in industry for many years, to aid in such processes as dyeing, dry cleaning, metal cleaning, and incorporating solids in liquids. The fire service, as we have indicated, has become aware of the usefulness of these compounds in making water a more efficient extinguishing agent, and as we continue in our study we shall see how much more effective it becomes when this knowledge is applied to the problems of our profession.

The surfactants discussed possess to some degree all of the properties described previously. They are selected for use on the basis of excelling in one property more than in the others. Thus, we find that a good emulsifying agent may also to some extent be a wetting agent, while a good wetting agent may also have some emulsifying properties. These facts are important in our use and selection of surfactants because the substances can not and do not exert their effects in one manner only. There is always a combination of actions with one dominating the others.

The important characteristic of wetting agents is lowering the angle of contact between water and hydrophobic surfaces. This is brought about because of the strong attraction between the hydrocarbon end and the surface to be wetted. As each chain anchors itself to the surface, its polar end pulls water molecules along with it, laying down a covering which is strongly hydrophilic. The type of molecular structure which gives detergent properties is like that of soap, in which a straight long chain hydrocarbon is coupled with a polar group at its other end. Superior wetting properties, however are possessed by that type of structure in which a side chain or branched compound has its polar end near the middle of the molecule.

Surface tension reduced

Of lesser importance is the reduction in surface tension of the water. Aside from causing water to have greater mobility and easier flowing qualities, surface tension reduction of itself has little effect on wetting ability. In fact, some very good wetting agent solutions have a higher surface tension than some of the poorer ones. Reducing surface tension alone without a reduction in the angle of contact may actually reduce the penetration of water into capillary pores.

To understand this better, reference is made to Part II, in which the mechanism of capillary penetration was explained. It will be recalled that movement of water in a capillary is the result of wetting the glass around the edges of the water surfaces, causing it to creep up the walls. This wetting of the glass surface causes the water to spread out as it attempts to cover the glass surface. Surface tension then operates in an effort to reduce the surface area, but because adhesion between water molecules and glass molecules is greater than cohesion between molecules of water, the pull across the surface results in a net force acting upward. The extent to which water is drawn up the tube against the pull of gravity depends upon the strength of the surface film in supporting the weight of the water column. Now, suppose the surface tension were reduced without affecting the angle of contact. The water molecules around the edges will still creep up the walls as before. However, because the strength of the surface film is now less than before, the height of the column will be lower. The reduced surface tension is able to support only a small weight of water as compared with that of the stronger film.

Reduction in surface tension alone, then, does not materially increase the wetting qualities. It is important that adhesion between water molecules and the surface to be wetted be increased, or, in other words, that the angle of contact be lowered.

(To be continued)

	← INCREASING ACID DECREASING →						NEUTRAL	INCREASING → ALKALINE ← DECREASING						
HYDROGEN ION CONCENTRATION	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}	10^{-11}	10^{-12}	10^{-13}	10^{-14}
pH	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Fig. 21. The pH scale for measuring acidity or alkalinity

Newark Uses Aerial Ladders as Emergency Radio Towers

IN KEEPING WITH THE FIRE SERVICE philosophy of being prepared for any emergency the Newark, N. J., Fire Department has equipped three of its aerial ladders with special antennas for possible use of the apparatus as radio base stations. In case of failure of the fire department radio base station, any one of the three units may be placed in service in a very short time in order that the mighty important radio communications be maintained.

Under the leadership of Fire Director James T. Owens and Chief Engineer Harry J. Sommers, the program to sustain continuous communications by this means was conceived and directed. Superintendent Arthur J. Moore, division of fire alarm and radio, in cooperation with engineers of the New Jersey Bell Telephone Company, worked out the plan to capitalize on the use of the aerial ladders.

Operates on 154-13 mc

The Newark fire radio system operates on a frequency of 154.13 mc. The antenna, normally mounted on the apparatus, measures 17½ inches in length with an associated skirt of 35 inches. Each of the three ladders carries one of the emergency antennas on the forward end of the apparatus, where it is stored and protected against damage by insertion into one of the hollow hand rails of the tractor. It is secured by means of easily removable wing nuts. A preconnected cable for attaching a radio unit to the emergency antenna is contained on a reel and readily accessible.

The ladders selected for emergency use are quartered in fire station sites which form a triangle: Ladders 9 and 11 (both American La France 85-foot aerials) being located at the city's high point, and Ladder 1 (Peter Pirsch 100-foot aerial) approximately ¾-mile north of the geographical center.

For direct communication with the department's central office dispatchers, an extension has been taken off each of the selected company's house phone and placed in a weatherproof cabinet mounted on poles adjacent to the respective quarters. The telephone locations were chosen to permit the ladder to be parked parallel to the curb with its mobile radio located no more than three or four feet from the pole. To facilitate operations each phone is outfitted with its own ringing bell. An extra long cord permits the instrument's removal from the cabinet and placement on the seat next to the fireman operating the apparatus radio.

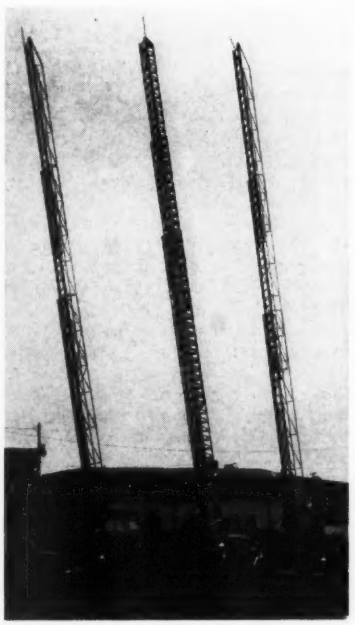
In the event of failure of the radio unit in any of the ladders, the mast may still be operated by using any one of the 85 mobile radio-equipped vehicles operated by the fire department. All of the antenna connections used in the department are standardized and are readily interchangeable.

Installation is easy

The following measures are taken when placing one of the ladder antennas in service. The dispatcher, upon discovering the main base station to be disabled, transmits the "base station off the air" signal over the fire alarm bell circuit. He then assigns any one of the three ladder companies, on an out-of-service signal, to act as an auxiliary base station. The assigned apparatus is moved out of quarters and placed in its designated position.

The portable antenna is removed from its storage place and secured to the tip of the fly ladder with the aid of two wing nuts and a bracket. The preconnected antenna cable is unreeled on the ground and care is taken to prevent it being snared by any obstacles during elevation. The aerial ladder is then raised to a vertical position and extended its full length.

The regular vehicle antenna of the apparatus radio is disconnected and the cable connector of the ladder antenna is attached to the mobile unit. The telephone installed on the previously mentioned pole is then tested with the fire alarm dispatcher and the latter is notified when the radio is ready for operation.



The dispatcher in turn, notifies the five or six companies located on the outskirts of the city to pull out of quarters and test with the auxiliary base station. When these tests have been completed, the dispatcher is again notified by means of the telephone; from then on until the emergency is over, all calls intended for radio broadcast are relayed by telephone from the dispatcher to the auxiliary base station for transmission. In turn, radio reports received by the station are relayed by telephone to the central office. The dispatcher notifies the fire department by transmitting a bell signal over fire circuits "base station in operation" and a like announcement is made by radio.

The elapsed time for placing an auxiliary station in operation is approximately six minutes. Once functioning, a member of the ladder company monitors all calls to and from the radio station and keeps a chronological station log. Finally, an officer of the fire alarm and radio division is sent to the scene to supervise all operations.

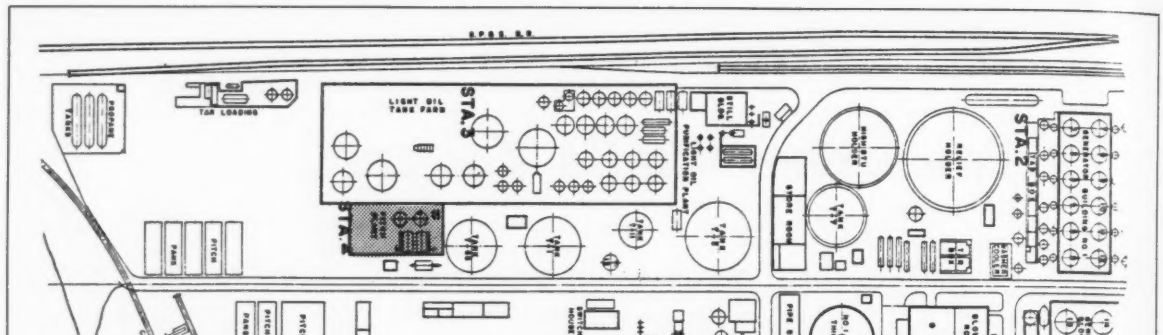
Emergency proves system

Only recently the value of the system was demonstrated by an actual failure. The Newark Fire Department base station equipment consists of duplicate transmitter and receivers located about 1½ miles from the central alarm office.

Continued on page 330

▲ **Captain Fred Koermaier** (standing) receiving telephone call from pole extension mount adjacent to fire station as Captain Arthur Marsh dispatches by apparatus radio

◀ **Newark Ladders 1, 9 and 11** extended to 70 feet with emergency antennas attached. In actual operation the ladder is extended to its full height


STA.3
STA.2
STA.1
STA.6
TAR LOADING
LIGHT OIL TANK FARM
PITCH
PITCH BAY
TANK FARM
PUMP HOUSE
BLOWER HOUSE
FILTER ROOM
SUPERHEATERS
TUBE BANK
TUBE BANK
TUBE BANK

Hazardous exposures

The pitch plant involved in the fire consisted of two horizontal tanks of 15,000-gallon capacity, with an operating capacity of 28,000 gallons and two vertical tanks of 50,000-gallon capacity each. The latter at the time of the fire contained 47,000 gallons of crude tar. These four tanks were located within a 36-inch high dike separating the pitch process from low-flash fuels as shown in the sectional diagram. The low-flash tank farm adjacent to the pitch plant on the west, consisting of 39 tanks, is approximately 8 feet below ground level, with the dike wall extending 3 feet above ground level. The common dike between the pitch plant and the tank farm indicates the proximity and hazard of the exposure. Hose lines from St. Helens Road on the west could not be laid through this dike to fight the fire from the west, because of the danger of explosive gas; also in the event of a tank rupture, the entire diked area would have become a flaming lake.

Valve cause of trouble

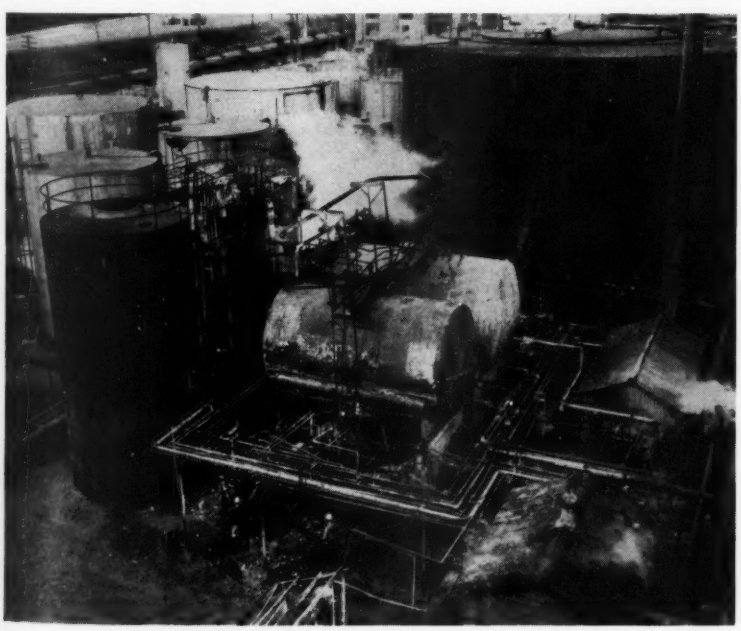
The pitch process involves heating crude tar to a temperature of 770 to 800 degrees which creates pressure in the two 15,000-gallon horizontal tanks. The material is held in a semi-fluid state during the pitch extraction process and the product is then pumped into the two adjacent 50,000-gallon tanks for further processing. A 10-inch equalizing pipe beneath the horizontal tanks has two valves attached (shown in photo), which are used in bleeding off an undesirable residue called "cokelet." At regular intervals, the operator, with another man to serve as a safety check, closes the bottom valve and then opens the top valve entrapping the cokelet between the two.

At 10:54 a.m., Mr. Black, receiving no response from his call for the safety man, opened the top valve without closing the lower one. Immediately the area was flooded with hot acrid gases and Mr. Black was unable to close the valve. Just outside the dike, a distance of 30 feet from the valve, he shut off the gas supply feeding the boiler and turned in the plant alarm.

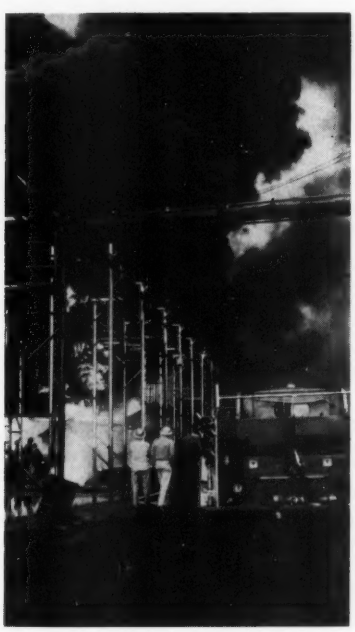
Plant personnel, making another effort to get to the valve, were driven back 200 feet by the fumes, which then contacted the 1320-degree boiler fire wall and caught fire. At the time ignition took place, sufficient tar had escaped to send flames from around the tank leaping to 150 feet in the air. The burning increased the temperature and both tank safety valves thereupon opened, providing additional fuel for the fire.

The first alarm at 10:56 a.m. was received at the fire alarm office via telephone reporting a fire in a building. The assignment on the first alarm dispatched Engines 16, 32, 33, 36, Truck 7, Fireboats 2 and 3, Turret 1 and Chief Albert

Air Force crash truck applying foam through two roof-mounted monitors—*Portland F. D. photos*



The two horizontal tanks supplying fuel for the fire. Boiler house is on right and control house lower right. Bleeder valves are located below tanks



Engine 3 protecting exposures on the south during early stages of gas company fire

Oliverio of Battalion 2. Engine 33, commanded by Lieutenant Hamsik arrived first at the fire scene, laid in one 2½-inch fog line, but unable to get in close enough to be effective with the fog, was forced to back away and concentrate a straight stream upon the tank exposures to the north of the fire. Lieutenant Hamsik radioed a second alarm at 11:01, calling Engines 17, 3, 2, Truck 3, Compressor 1, Squad 1, Turret 2 and Assistant Chief Kenneth Post. By this time, Engines 16 and 32 were starting to cover the exposed benzine tanks to the west. Engine 36 laid a line from Engine 33, resulting in the pump pulling a vacuum with the consequent drop in pump pressures.

Air Force crash unit called

Chief Oliverio upon his arrival called for a fourth alarm, bringing Engines 1, 21, 24, 30, Truck 1, Compressor 2, and Chief Henry Surbaugh of Battalion 1. Second-alarm companies arriving stretched in from two city hydrants on St. Helens Road to the west side of the low-flash tank farm. Chief Oliverio ordered Fireboat 3 connected to the fire main in an effort to supplement the water supply. Assistant Chief Post, upon arriving, assumed command and immediately called for a crash truck from the Air Force facility at the Portland-International Airport. Had the initial alarm been reported as a petroleum fire, the crash truck would have automatically been dispatched under the mutual aid agreement in force.

When it became apparent that Fireboat 3 was unable to raise the pressure in the fire mains, the two turret wagons stretched 3½-inch lines to the boats for auxiliary water supply.

The crash truck arrived at approximately 11:20, commanded by Air Force Fire Chief Donald Brown. It attacked from the south with two foam turrets operating. Prior to the arrival of the crash truck, Chief Post had ordered the gas company's chemical foam generator into action but its operation was so erratic that it proved ineffective.

Portland Fire Chief H. E. Simpson stated that the turning point of the fire was the arrival of the crash truck. Two hundred and fifty gallons of 8 per cent mechanical foam solution blanketed the 18 inches of burning tar within the dike on the south side. The large-velocity fog streams then operating from water towers and the ground on the northeast side, effected extinguishment at about 12:00 noon.

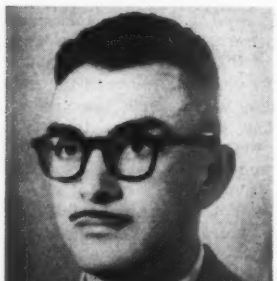
Statistics

In all, 22 pieces of apparatus including nine pumpers, two hose wagons, three trucks, two fireboats, two turret wagons, two compressors, one squad and one crash truck, responded. Hose used included 2,050 feet of 3½-inch, 9,750 feet of 2½-inch and 150 feet of 1½-inch. Pumping time was 15 hours, 57 minutes. A total of 19 officers, including two battalion chiefs, one assistant chief and Chief Simpson, and 75 fire fighters fought the fire. □□

Formula for Determining Reach of Stream

By COL. P. R. DE MOURA

Commander, Fire Department, Sao Paulo, Brazil



FOR SOME TIME now we in Brazil have wanted to add to the Underwriters' formulas which heretofore, according to "Fire Stream Practices," Unit V, have only numbered two. These two formulas give the loss of head and flow. The formula we suggest would give the reach of a solid vertical stream, the nozzle pressure being known.

John R. Freeman, as early as 1888, drew up several experimental tables that undoubtedly helped to correct or confirm many calculations and mathematical formulas of hydraulic application. In one of these tables (as published in the "Handbook of Fire Protection" by Crosby-Fiske-Forster) we find the results of experiments conducted on the range of streams, which appeared as "fire stream reach" or as "reach (horizontal and vertical) of solid streams." Although we can find nothing in the same table that might enlighten us as to the way in which to distinguish the total reach from the effective reach, we assume the latter, because of the loss resulting from resistance of air, will have to be approximately 13 per cent less than the total. However, these data can be considered merely empirical, because no one can determine the exact point at which the stream stops being solid.

Empirical formula developed

Taking the table as a basis, and then securing a confirmation later through deduction, we succeeded in arriving at the following formula which enables us to determine the vertical range of the solid stream, the pressure being known

$$h=2P-\frac{P^2}{100},$$ where h is the vertical

reach of the stream in feet and P, the nozzle pressure in psi.

The formula for determining nozzle pressure where the vertical reach is known is: $P=100-10\sqrt{100-h}$

Let us see how these formulas are arrived at. A cubic foot of water weighs 62.4 pounds, which is also the pressure exerted by the water at the bottom of a cube of 1 cubic foot capacity. The area of the bottom of the cube is 1 cubic foot. Since a square foot contains 144 square inches:

$$\text{psi}=\frac{h\times 62.4}{144},$$ where h is in feet.

From the above we get: $P=0.434\ h$, and $h=2.3\ P$.

This is the theoretical height in vacuum. In the atmosphere we will have to take into account the resistance of the air and the reduction of the total reach. Deducting 13 per cent, we find that $h=2\ P$.

However, this is not enough, because in proportion as the pressure and stream velocity rise, the resistance of the air also rises.

This influence may be taken into account with a second negative term, and it has been experimentally ascertained that it is of the order of one hundredth part of the square of the nozzle pressure. Under these conditions the reach of the solid vertical stream will have to be given by:

$$h=2P-\frac{P^2}{100}$$

To become better acquainted with the accuracy and applicability of the formula, we decided to consult the Department of Hydraulics and Hygiene at the São Paulo Polytechnical School. The professors, after having studied the formula in terms of 1, 1⅛, 1¼ and 1½-inch nozzles, verified its application to current cases.

Nevertheless, the application of the formula is limited to pressures capable of throwing vertical streams up to 100 feet. However, very rarely do cases present themselves of solid vertical streams that exceed the height of 10 floors. □□

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EUREKA's exclusive *multiple-weaving* process, employing filler cords of "Dacron"*, produces top-quality fire hose with these outstanding advantages:

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- Weighs one-third less,
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- Permits more hose to be carried,
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EUREKA FIRE HOSE

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Division of **United States Rubber**

Four Killed in "Space Age" Fire Blast

Rocket propellants rip Thiokol plant in Elkton, Md.... Importance of efficient mutual aid operations demonstrated

This account is of necessity limited by security regulations. Details have been secured from FIRE ENGINEERING's correspondents and the press. It is suggested readers review this report with the editorial in the February issue, "Secrecy and Security" and the report of the Wilmington, Del., fire in the March issue.

Firemen in the Elkton area are for the most part volunteers. They are generally aware that their district is "hot" with occupational hazards. They know they must rely upon the plant security forces of the respective industries and government installations to guide them in their fire control and rescue efforts when they roll in.

Fortunately for them, they received this cooperation—unlike the situation described in the editorial and in the Wilmington article.

The operations at this and other critical incidents in the district may well serve as a guide for other fire forces in other "target areas."

FOUR MEN WERE KILLED and four others were injured—two critically—in a flash fire and series of explosions at the rocket plant of the Thiokol Chemical Corporation, Elkton, Md.

The plant three miles west of Elkton, near busy U. S. Route 40, is engaged in research, development and production of rocket engines and fuel for guided missiles. The plant has been filling government contracts for rockets and their propellants since 1948. According to reports, the property was leased at that time by Thiokol to develop a solid propellant motor fuel of synthetic rubber mixed with an oxidizer. The basis of the synthetic rubber is sulphur, carbon and hydrogen. The solid propellant which Thiokol produced at the plant is said to be "a rubbery compound which when fused, burns like gunpowder. It is mixed and cooked in huge vats, then molded into various solid shapes inside stovepipe-like cylinders, varying in size depending upon the rocket."

The several buildings constituting the plant are of one and two stories, built of concrete and metal—most of them with metal on wood roofs—and are widely scattered to prevent complete destruction in the event of fire. Elaborate safeguards are in effect. No matches or open-flame cigarette lighters may be carried into the buildings. In all manufacturing structures, all employees and visitors wear rubber-soled shoes or overshoes.

The building involved, known as A-7, measures approximately 100 feet by 40 feet and is provided with numerous exits. The fire apparently started from an undisclosed cause in a mixing bin of solid rocket fuel. Workmen reported a flash or ball of fire burst out of the mixer, rolled down the corridor and set off other rocket engines, including completed rockets loaded with propellants. The fire blazed fiercely into the tin and wood-insulated roof, sending a mushroom cloud of smoke high into the air.

It is said that of the approximately 250 employees in the plant 25 were in the building involved. Of these, 20 escaped death or injury by running from the building. The four victims were apparently trapped by the flames in the structure, three of them being killed instantly, the fourth reported dead on arrival at the hospital.

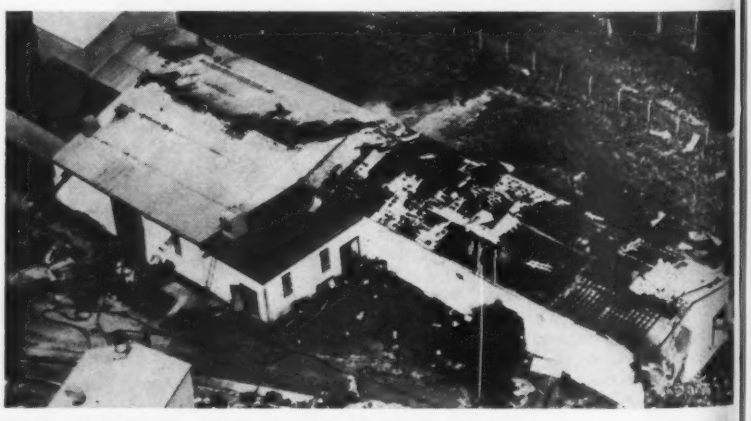
Plant employees confirmed the report that some rockets were ignited by the fire and shot through the roof. The "low grade explosion," while it did not carry the quick force of a blast, was heavy enough to blow off a large section of the roof and shatter parts of the walls. The force was powerful enough to hurl large metal cylinders apparently used for the storage of chemicals, over a section of Route 40 nearly a mile away.

Residents of the neighborhood reportedly have been accustomed to hearing explosions from the plant in the last three years, but the series of blasts, accompanied by the general fire alarm and response of fire apparatus, created considerable confusion throughout the area. Residents and curiosity seekers rushed towards the scene in their cars and on foot, as state police, town police and company guards sought to keep them away from the plant. Highway 40 was jammed with vehicles for several miles. It took an hour's work for police and guards to break up the traffic jams. Meanwhile, rumors of a major disaster were rampant. Even state police had trouble getting an accurate account. A frustrated trooper described the scene as "a mass of confusion."

Notwithstanding the difficulties and dangers involved, firemen from Elkton, Northeast and Newark, Del., responded and brought the blaze under control. Four volunteer companies, including Aetna Hose, Hook & Ladder Company of Newark; the Singerly Fire Company of Elkton; the North East Fire Company of that community and the Chesapeake City Fire Company responded. North East sent an ambulance and ladder truck; Singerly dispatched a salvage unit and two ambulances and its fire fighting equipment; Newark rushed two pumpers, and Elkton responded with its full strength. Aetna fire fighters reported the roof offered a major obstacle in their efforts to kill the fire, since its wooden planks were coated with two layers of tin. The fire was under control at 12:20 p.m.

It is said fuel manufactured by Thiokol was used in the "Far Side" rocket which soared at least 2,750 miles above the Pacific Ocean on October 21 last. The firm also makes solid fuel for the Army's "LaCrosse," the Air Force's "Falcon," and booster rockets for the "Matador" and other guided missiles.

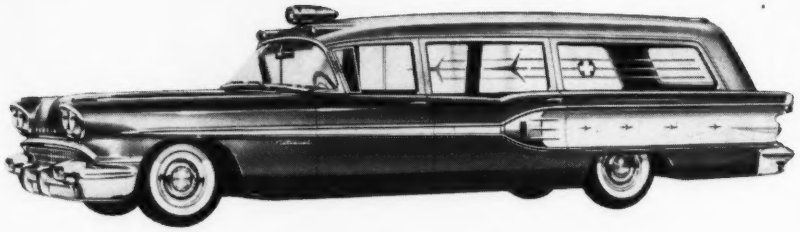
The FBI was brought into the case to conduct an investigation. The property loss was not released, but was said to be "considerable" and estimated between $100,000 to $300,000. □□



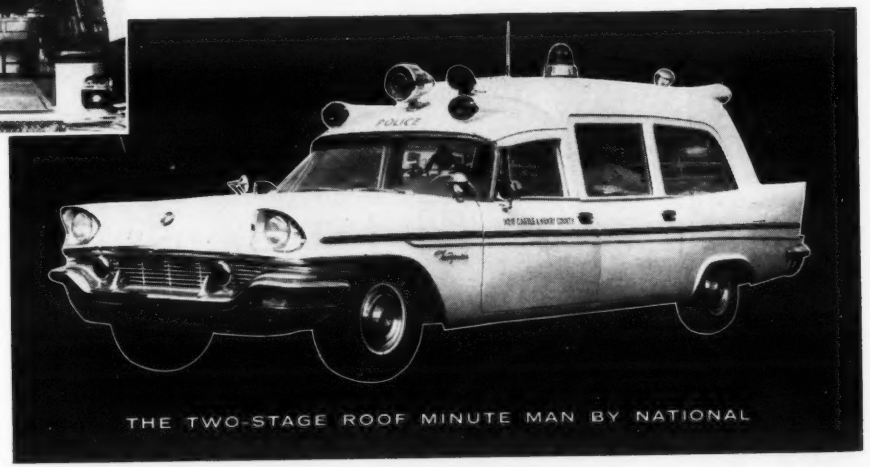
Fire in mixing bin of solid fuels at plant of Thiokol Chemical Co., touched off propellants and completed rockets, leaving four persons dead

THE HIGH HEADROOM MINUTE MAN BY NATIONAL

THE REGULAR MINUTE MAN BY NATIONAL



THE REGULAR MINUTE MAN BY NATIONAL



THE TWO-STAGE ROOF MINUTE MAN BY NATIONAL

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designed to meet your specific needs. Contact your local auto dealer or write today, without obligation, for photographs and complete information about National Ambulances. National Coaches, Inc., Knightstown, Ind., Phone 5-4535.

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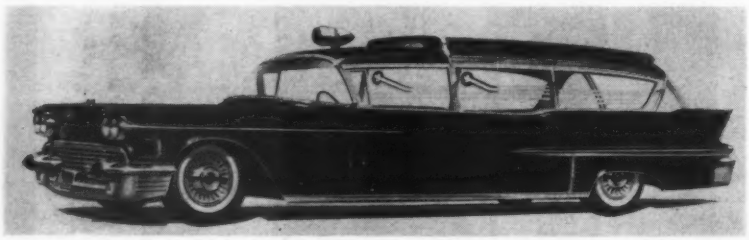
WHAT'S NEW

Among the Manufacturers

- products
- processes
- personalities



New Ambulances Announced by Superior Coach Corp.

Superior Coach Corp., Lima, Ohio, is offering its exclusive "Criterion Styling" in both Cadillac and Pontiac ambulances and rescue coaches in its 1958 line.

All models reflect the longer, lower and wider passenger car trend and at the same time maintain the specifications for efficient and convenient emergency operation.

Three headroom heights are offered with the Cadillac chassis and two with the Pontiac.

FEMA Elects Officers

Members of the Fire Equipment Manufacturers' Association, Inc., climaxed a two-day annual meeting in New York, March 17-18, by electing a new slate of officers.

A. D. Symonds, executive vice president of W. D. Allen Manufacturing Co., Chicago, Ill., was elected president. He succeeds Walter E. Morgan, Jr., assistant vice president, Walter Kidde & Co., Inc., Belleville, N. J., who automatically becomes a member of the board of directors.

W. E. Tromanhauser, vice president and general sales manager, Pyrene-C-O-Two Division, The Fyr-Fyter Co., Newark, N. J., was elected vice president of the 16-member trade association. Paul J. Nurkiewicz, vice president of Stop-Fire, Inc., Monmouth Junction, N. J., was re-elected treasurer of the group.

Elected to the FEMA board of directors were Howard Carlough, owner, The Safety Fire Extinguishers Co., New York, and L. C. McKesson, vice president sales, Ansul Chemical Co., Marinette, Wis.

Literature Available

A catalog sheet describing its new compact alternator system for limited space requirements has been prepared by **Leece-Neville Co.**, 1374 East 51st Street, Cleveland, Ohio. Design, application and installation information are covered in detail.

The 1958 edition of its Communications Buyers Guide 1-58 is available from **Motorola Communications and Electronics, Inc.,** Parts Department, 4910 West Flournoy Street, Chicago 44, Ill. The 116-page catalog is profusely illustrated with photos, drawings and diagrams. For free copy, write the above on your letterhead.

New G-E Station Amplifiers

Two new base station amplifiers, designed to provide up to 330 watts of power, have been added to the General Electric Company's line of communication equipment.

It is claimed the higher power assures greater quieting in mobile receivers and greater freedom from interference caused by ignition noise in fringe areas. The new units are available for the 25-54 and 144-174 mc bands.

For further information, address General Electric Communication Products Department, Syracuse, N. Y.

John Bean Jeep Fog Pumper

A jeep-mounted high pressure fog fire fighter is now being manufactured by John Bean. Designated as model JE-265, the unit is designed for industrial protection where inside and outside plant operation is required.

It employs a 3-speed transmission coupled with 4-wheel drive and includes a compartment for the power take-off high pressure pump, two-man cab, a rear platform constructed of step-plate material and a hose deck. Tank capacity is 200 gallons and two hose reels are provided.

Optional equipment includes spot lights, rear hose lights, directional lights and siren, and electric hose reels on 12-volt systems.

For complete information write Industrial Sales Department, John Bean Division, Food Machinery & Chemical Corp., Lansing 4, Mich.

Wallpaper With A Fire Motif

F. Schumacher & Co., 60 West 40th Street, New York 18, N. Y., has introduced a new pattern on 36-inch glazed chintz and wallpaper featuring the famous old fire engine, Water Witch No. 2, belonging to the New Milford, Conn., Fire Department.

This design was created by John Jacoby and, in addition to Water Witch No. 2, shows old fire insurance seals. The pattern is called "Fire Brigade" and may be obtained in five colors through local decorators or department stores.

Fyr-Fyter Buys Globe Sprinkler

William McK. Wetzel, chairman of the board, The Fyr-Fyter Co., 221 Crane Street, Dayton 3, Ohio, has announced the purchase of the Globe Automatic Sprinkler Co., Philadelphia, Pa.

At the same time it was announced that A. M. Lewis, president of the 43-year-old sprinkler firm, will continue his association in the sprinkler business with the Fyr-Fyter Co.

Laces Speed Shoe Removal

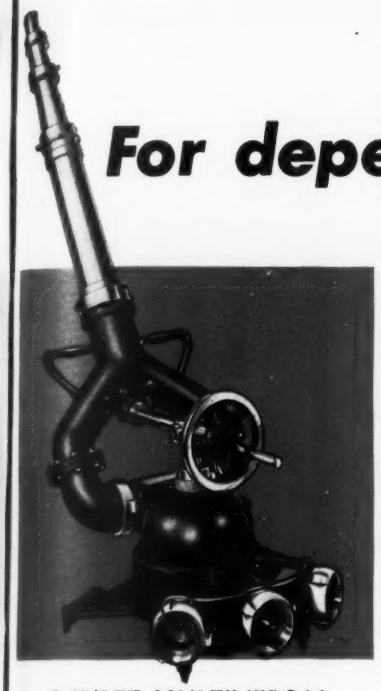
John H. Kerr, Importer-Exporter, 635–41st Street, Brooklyn 32, N. Y., is marketing elastic shoe laces for use by firemen and other persons who must remove their shoes in a hurry.

Packard-Bell Sigalert System

Packard-Bell Electronics Corp., 12333 West Olympia Blvd., Los Angeles, Calif., announces the introduction of the Sigalert group alerting system for off-duty and volunteer firemen.

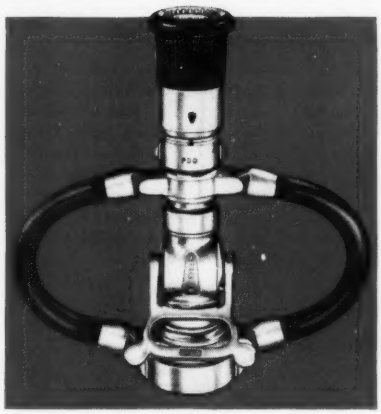
The system consists of a fixed-tuned receiver which is located in the home or business place of desired personnel and

For dependable fire fighting...



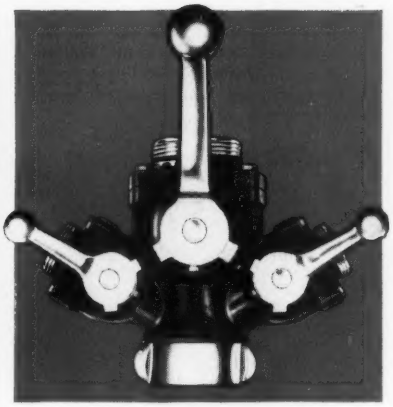
3-INLET MULTIVERSAL

Gear operated, hand wheel control. Safety stop and lock permits portable operation down to 25° and "mounted" operation to 15° below horizontal. Lightest deluge set in the service. Will not creep or crawl. Style #501-MT.



AXIAL PLAYPIPE WITH PDQ-X NOZZLE

Revolutionary new design. Shutoff between Playpipe handles. Shorter, more compact, and better balanced. Large gallonage — equivalent to 1" tip. Removable tip simplifies addition of 1½" lines for overhaul and clean-up. Style #1233.

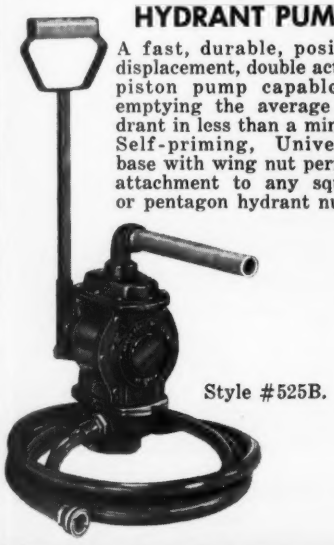


WATER THIEF

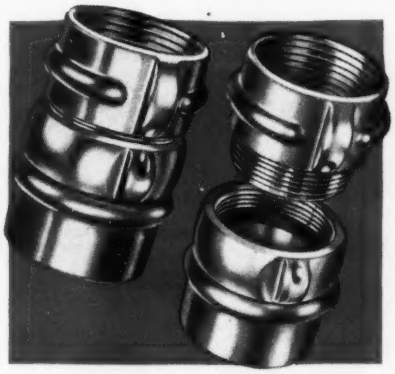
Short, light, compact. Use with preconnected lines, on a hydrant, on discharge gate of pumper, etc. Permits addition of 1½" lines, or removal of 2½" without shutting down. Quarter turn valves with adjustable seat. Style #273.

"HY-DRAIN" HYDRANT PUMP

A fast, durable, positive displacement, double action, piston pump capable of emptying the average hydrant in less than a minute. Self-priming, Universal base with wing nut permits attachment to any square or pentagon hydrant nut.



Style #525B.



HEAVY DUTY ROCKER RING® COUPLING

Heavy duty, drop-forged, "Rocker Ring" coupling. The toughest, strongest made. Available in 1½" and 2½". Higbee thread and Higbee indicators. Style #92.

PDQ-X FOG NOZZLE

The top of the PDQ. No ball shutoff. Same rugged, all cast brass construction — no tubing. Molded rubber bumper. Positive stream selection, by feel or sight. Nozzle has its own shutoff. Available in 1½" and 2½" sizes.

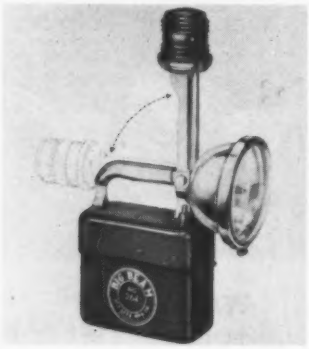
AKRON BRASS
FIRE FIGHTING EQUIPMENT

AKRON BRASS MANUFACTURING CO., INC.
WOOSTER, OHIO

which is triggered by special subaudible tones broadcast by the local fire radio transmitter. When actuated by the base station an alarm sounds, an alerting light glows and the loudspeaker operates normally in order that the transmission may be heard.

New Big Beam Lamps

The U-C-Lite Mfg. Company, 1050 West Hubbard Street, Chicago 22, Ill., announces two new Big Beam electric hand lamps featured sealed-beam heads and operating on two standard 6-volt lantern batteries.



Model 264 is a combination whitelight and red flasher type with the thermal flasher unit contained in the bulb itself. Model 266 is a moderately priced, quality-built unit of equal power and brilliance without the flasher arm.

Dunne Joins Bomgardner

The appointment of John B. Dunne as assistant sales manager is announced by The Bomgardner Manufacturing Company of Cleveland, Ohio., manufacturers of stretchers, cots and allied equipment.

Mr. Dunne comes to Bomgardner from Globe Industries, Inc. of Dayton, Ohio, where he was sales manager of the medical and hospital department. Before going to Globe he was professional services representative for Mine Safety Appliances Company in Pittsburgh. Well-known to the industrial health and safety fields, Mr. Dunne has been a frequent speaker throughout the country on subjects pertaining to respiratory protection and has contributed to FIRE ENGINEERING.

G-E Radios for Washington, D. C.

General Electric Company's Communication Products Department has been awarded a contract to supply 111 mobile radio units to the District of Columbia. These will be used in ambulances, chief's cars and apparatus of the fire department, as well as police and highway maintenance vehicles.

MSA Chairman To Be Honored

Mr. George H. Deike, Sr., chairman of the board of directors, Mine Safety Appliances Co., Pittsburgh, Pa., and president emeritus of the Pennsylvania State University board of trustees, will be honored for his many services to Penn State at a dinner to be held May 27.

Sponsors of the testimonial are the Penn State Lions. The dinner will be held in the Penn-Sheraton Hotel.

FWD Sales Representative

Industrial Fire Protection Company, 133 West Water Street, Lima, has been appointed to represent Four Wheel Drive Auto Company in sales and service of FWD fire apparatus in northwest and central Ohio.

New Fyr-Fyter Extinguisher

Dry chemical is now available in a 2½-pound pressurized extinguisher from The Fyr-Fyter Co., 221 Crane St., Dayton 3, Ohio.

Model 23-1 is designed for emergency applications where protection is desired against incipient fires in gas, oil, and electrical equipment. The new model is Underwriters' rated at 2-B, C.

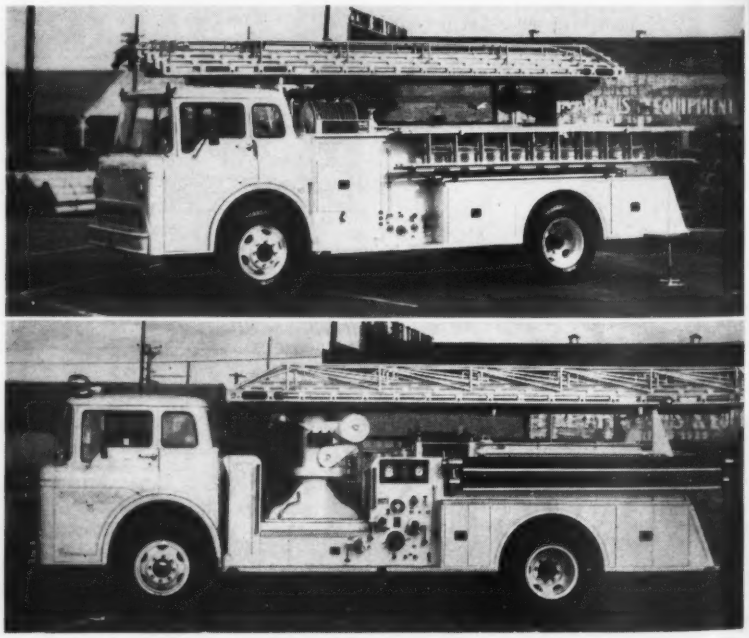
Memco Ladders On Van Pelt Quintuple Units

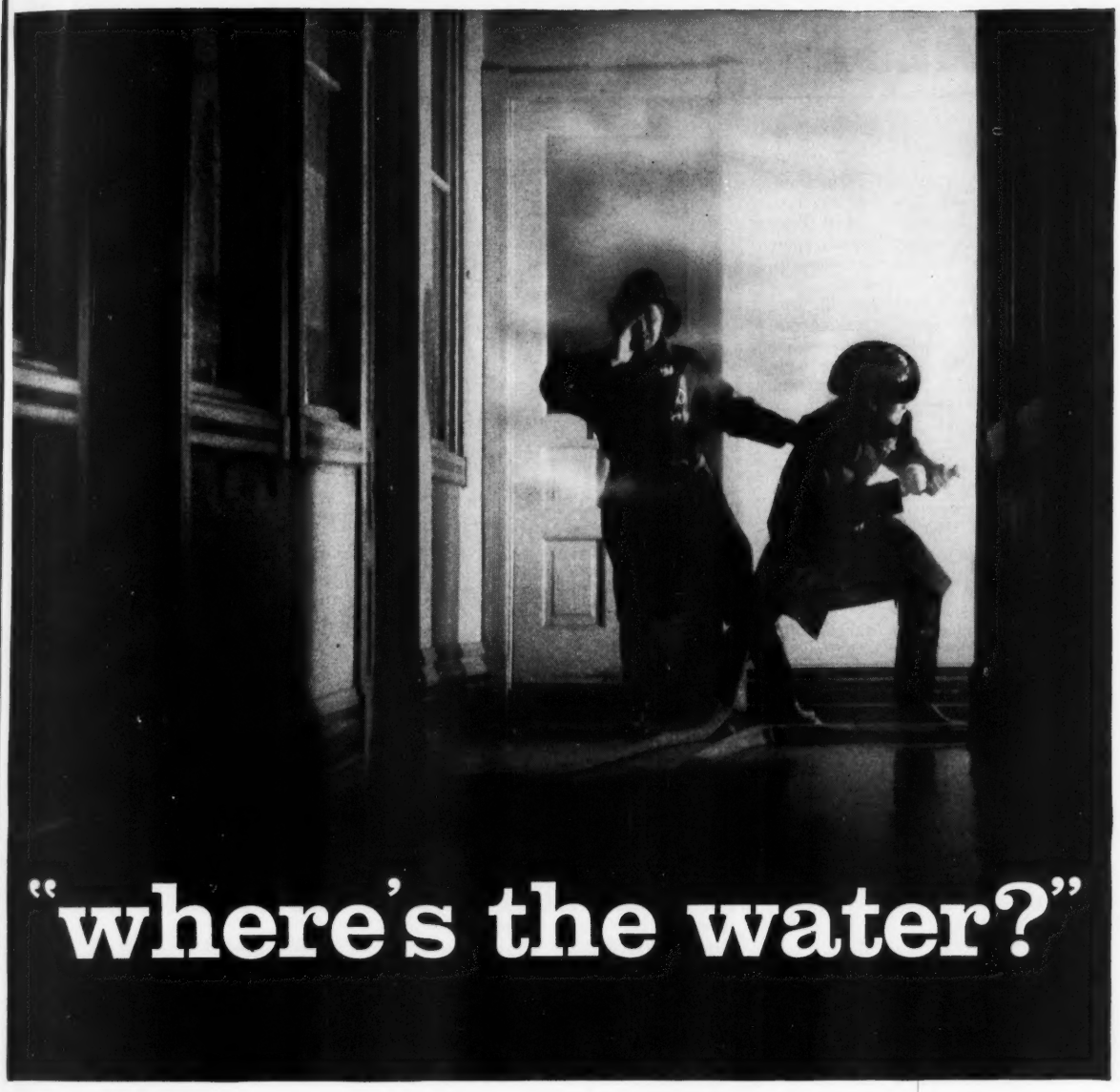
P. E. Van Pelt, Inc., Oakdale, Calif., recently completed two pumper-aerials which incorporate Memco ladders built by the Memco Aerial Ladder Co., Oklahoma City, Okla.

A high-pressure pumper-ladder unit built for Placerville, Calif., features a 65-foot rear mounted aerial, a Van Pelt 4-stage high pressure pump and a 400-gallon water tank. The North Central Fire Protection District, Calif., apparatus is equipped with a 50-foot midship-mounted ladder, a Hale 750-gpm Class A pump, a 500-gallon water tank and space for 1,200 feet of 2½-inch and 400 feet of 1½-inch hose.

Both units are built on Ford C-800 chassis and powered by 215 hp V-8 engines.

Continued on page 321



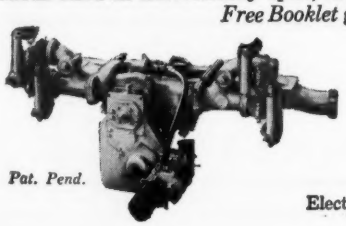


"where's the water?"

new Waterous *Electro-Matic pump gets water to the fire in less time

The *Electro-Matic* is the first fire pump to offer power operation for all major pump controls. You get into action faster, during those precious early minutes. You start pumping without lost motion. New Waterous *Electro-Matic* gives you push-button controls that reduce the chance of error and offer greater protection to personnel. Main pump is engaged at the flip of a switch; the powerful rotary-gear primer goes into action with the push of a button; "open" and "close" push-buttons unlock, reset and lock the discharge valves; a simple "volume-pressure" switch sets the transfer valve. And that's not all. The *Electro-Matic* is an entirely new pump in design. It weighs less, requires less space and can be mounted in a variety of methods to meet requirements of all modern chassis. All this plus the features that have made Waterous pumps famous such as horizontally-split, *two-piece* case and full ball-bearing construction.

Free Booklet gives complete details. Your copy by return mail. Send for it today.



Pat. Pend.

WATEROUS *Electro-Matic*

80 E. Fillmore Ave., St. Paul, Minn.
Dept. 303

*Registration applied for.

Electro-Matic Model CM, 1000 GPM, Class A. 500, 750 GPM, 2 or 3-stage models available.

FALSE ALARMS

Biblical

A certain fireman left his car in front of a fire hydrant with this note attached to the wheel: "I know I'm parked illegally, but my whole future depends upon my arriving at fire headquarters immediately: "Forgive us our trespasses."

When he crawled back into his car, three hours later, he found a parking violation ticket with another note which read; "My future depends upon my nailing illegal parkers." "Lead us not into temptation."

A certain fireman was out with his girl friend. They were going along the thruway at about 60 when the car skidded and overturned. After the crash, they found themselves together alongside the completely demolished car.

He put his arm around her waist, but she drew away.

"It's all very nice," she sighed, "but wouldn't it have been better to run out of gas?"

Dafinition

Prof'—"What is steam?"

Proby Fireman: "Water that's crazy with the heat!"

"When water becomes ice," asked the department instructor, "what is the great change that takes place?"

"The greatest change," said the proby, is the change in price."

Gal Friend: "Darling, if I didn't wear all these fine clothes, would you still think I'm beautiful?"

Fire Fighter: "Let's decide that question right here and now!"

Captain to Proby Fireman: "Can't you find something to do?"

Proby: Gosh! Am I expected to do the work and find it too?

A Fine Distinction!

The instructor in atomic warfare asked his class of fire fighters: "What's the difference between 'radiation' and 'contamination'?

The neophyte, fresh from the farm, thought for a moment and then came up with a 100 per cent answer.

"Radiation," he drawled, "is when you *smell* manure. Contamination is when you step in it.

Sarah: "What kind of dress did Susie wear to the party last night?"

John: "I dunno—But I think it was checked."

Sarah: Boy! What a party!"

She (sotto voice): "Horace, dear, there's a burglar!"

Horace: "Sh-h-h, don't move; don't breathe! Maybe he can get that dam' window up I been trying to open ever since the painters left!"

Sentiments of 1958

A story going the rounds just about sums up the feelings of the property and casualty insurance business over 1957 results. Seems, two insurance exec's were seatmates on a plane recently. Neither spoke for a long time. Finally, one gave a terrific sigh.

The other exec' responded: "I couldn't have said it better myself."

Little girl: "Mama, Papa wouldn't murder anybody, would he?"

Mother: "Gracious no! What makes you ask that?"

Little girl: "Well, I just heard papa down in the basement with Fireman Jones saying, "Let's kill the other two, Jim!"

Said the teacher to Willie: "Why Willie, what are you drawing?"

"I'm drawing a picture of God."

"But, Willie, you mustn't do that; nobody knows how God looks."

"Willie smiled confidently: "Well," he said, "they will when I get this done."

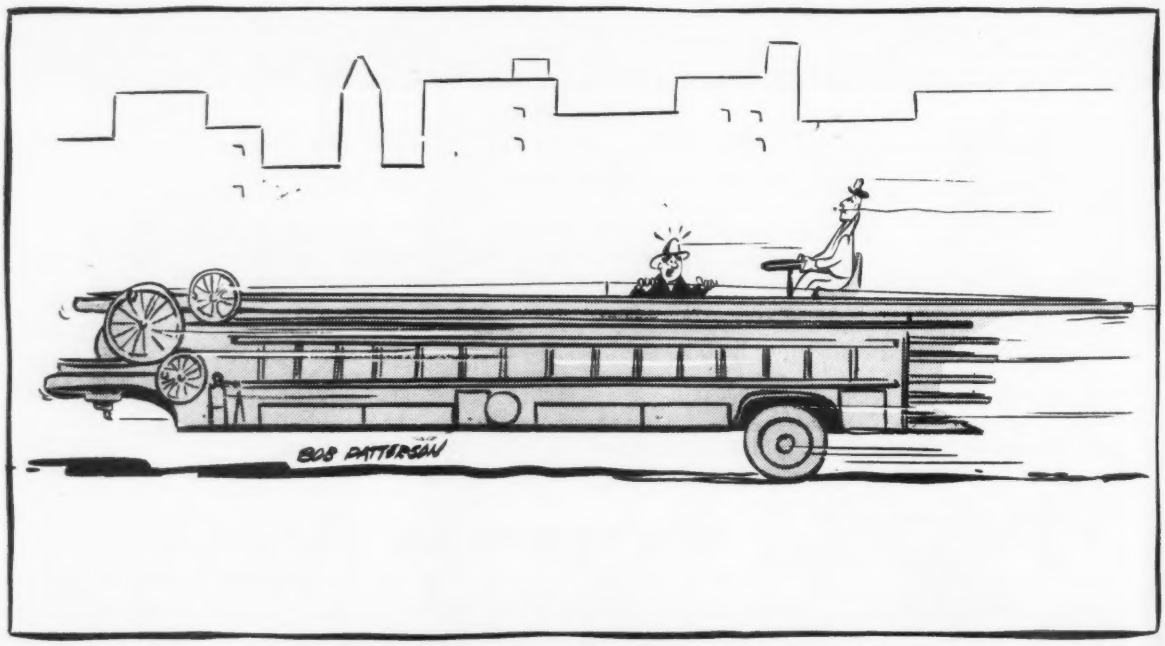
Mrs. Kinkchaser: "What is that stuff you are going to give my husband?"

Doctor: "Anesthetic. After he takes this he won't know anything."

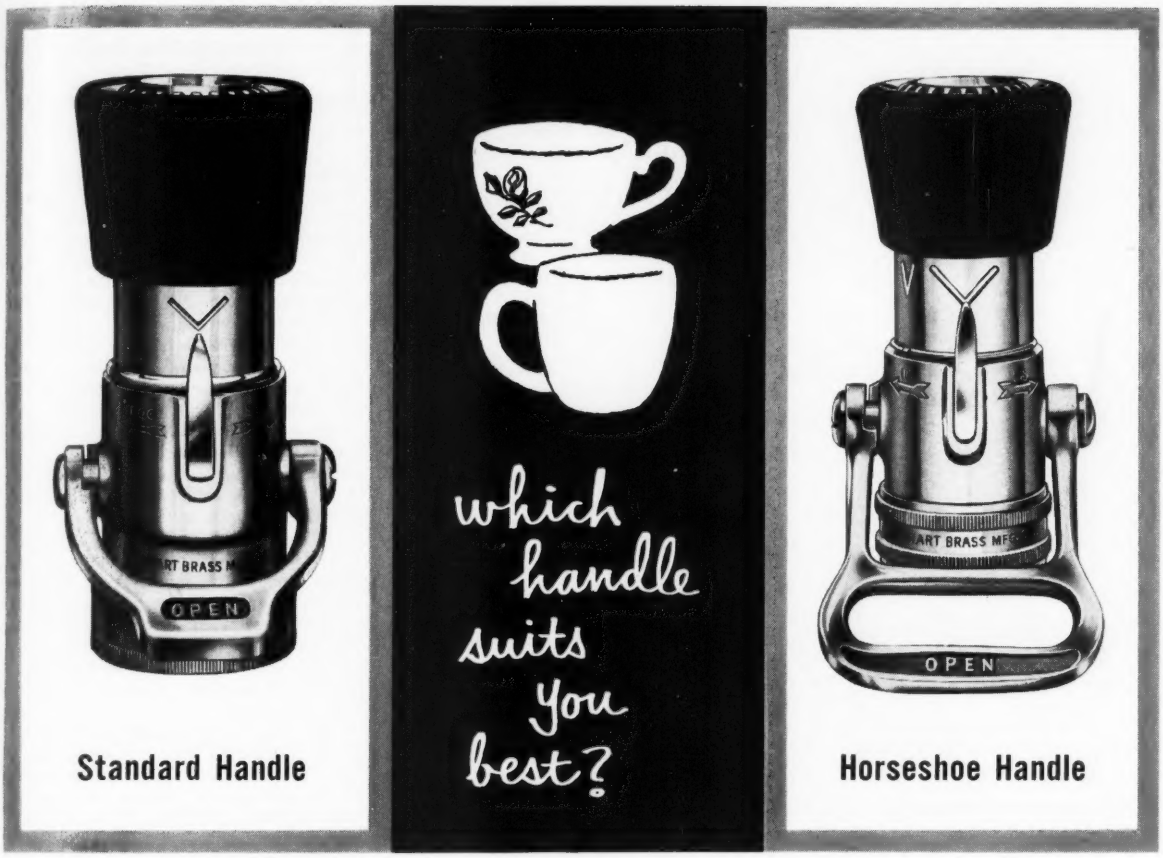
Mrs. Kinkchaser: "Come, doctor, he doesn't need that at all."

Salesman: "This slide rule is something you'll really need in your studies for promotion. It'll do half your hydraulics for you!"

Proby: "Fine, I'll take two!"



"Correct me if you will, but I still insist the others turned down Seventh!"

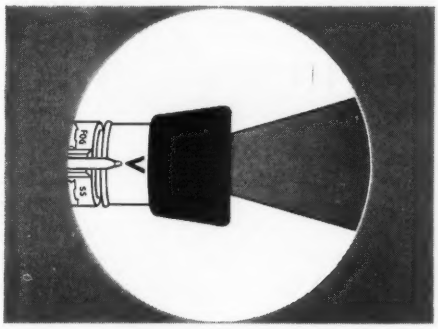


Standard Handle

Horseshoe Handle

ELKHART OFFERS YOUR CHOICE OF HANDLES ON Select-O-Stream Mystery Fog Nozzles

When you order your next Select-O-Stream Mystery fog nozzle be sure to specify the style handle you prefer. In all Select-O-Stream sizes 1″, 1½″, 2½″ Elkhart offers the Standard handle and the larger Horseshoe style handle. The compact Standard handle offers finger tip control on the ball shut-off, while the Horseshoe style is especially adaptable to gloved hand operation. For sure, make Select-O-Stream your first choice... then choose the handle that suits you best.



AVAILABLE GPM 30° FOG AT 100 p.s.i.

1″	12 or 23*	
1½″	40, 60, 90*, 125	
2½″	170*, 250	*standard

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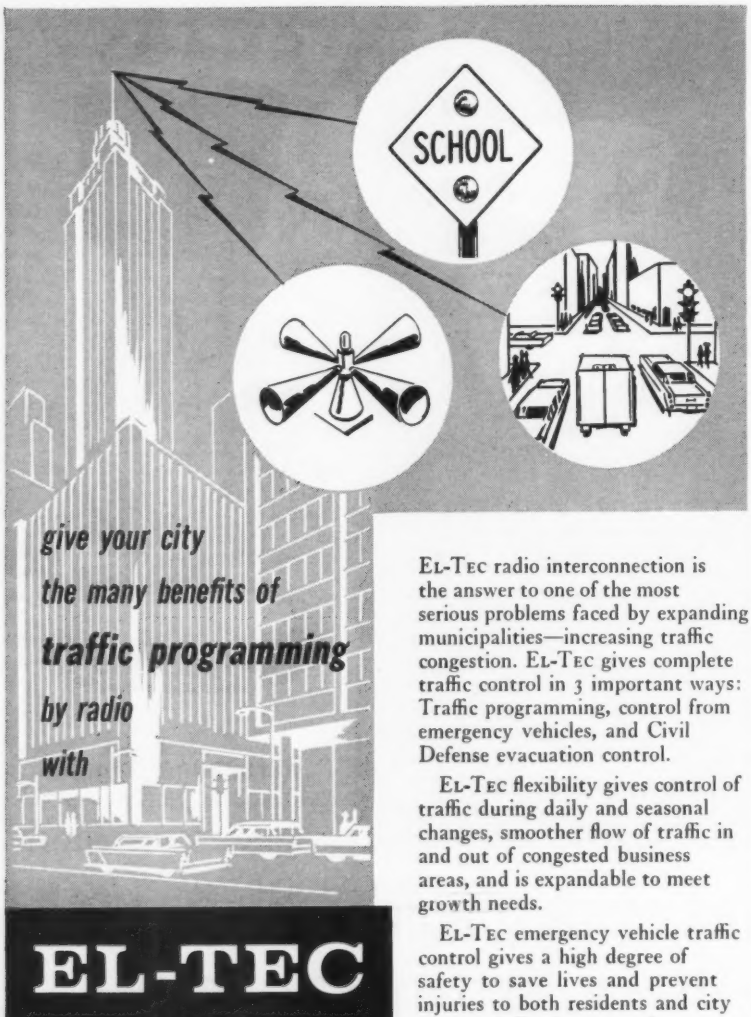
ELKHART, INDIANA

More than half a century of fire fighting progress



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E196

Among the Buffs

By Paul C. Ditzel

ABOUT THE TIME this hits print Fire Buff Norman Zaffater of Shreveport, La., will tack a new title to his name: Dr. Norman Zaffater. He's a product of Loyola University's Dental School in New Orleans and apparently he learned more than what happened to Pepsodent after the yellow came and went.

While he wasn't boning up with his hammer, chisel and pneumatic power drill, Brer Zaffater was learning how the New Orleans Fire Department fights 'em. And so, apparently, was his southern belle, Carol. Take a recent evening, for instance, when he promised to take her to a movie to celebrate her birthday. It shouldn't happen to a Yankee.

"We were on our way to a movie," says Dr. Zaffater, "when a news bulletin came over the car radio telling of a large fire in the city but gave no location in order to prevent sightseers from clogging up the works. En route to the nearest engine house to find out the location my gal, Carol, spotted a glow in the distant sky."

The good dentist reports that Carol has become quite a fire fanette herself and in fact it seems like the big blazes usually occur when she is around. All of which sounds like a master understatement to me. Anyway . . .

"We arrived at the fire and found a large two-story apartment house heavily involved. The wind was really whipping it up, causing the flames to spread throughout the entire apartment house."

Norm and Carol were surprised to find they had arrived ahead of the 2-11 alarm apparatus and it wasn't until later that they discovered the radio flash was for another fire elsewhere in the Mardi Gras city.

"After the blaze we paused at my place a second and while there I turned on my set and as I did I heard the familiar 'beep-beep signal and the little man in the alarm office was striking another box. We followed this one up, too. It turned out to be a 2-11 alarm, the third that night."

Norm postscripts: "It turned out to be quite an evening, although we never made the movie. But I don't believe she minded too much."

Inasmuch as this is a public forum, the floor awaits any rejoinder that Carol might like to make. In the meantime, Happy Birthday!

Irving Herschbein, secretary of The Fire Bell Club of New York City, extends an invitation to all fire buffs to attend their 19th annual dinner Monday, May 5, at the Tavern-on-the-Green, Central Park West at 67th Street, New York. Tickets go at $8.75 for a roast beef dinner, entertainment (for that price they should toss in a 9-11 and 17 specials fire), door prizes and refreshments. Tickets may be obtained from Dinner Party Treasurer Joe Murtha, c/o Hotel Martinique, Broadway and 32nd Street, New York 1, N. Y.

The demon fire buff Jerry Adelsdorfer, whose own stationery reads, "The-Bull-King," is chairman of the dinner committee.

Jerry sends along the clippings of the tragic fire which claimed so many firemen in February and says that all the boys from The Fire Bell Club made that blaze (story in March issue of FIRE ENGINEERING), plus another multiple alarm close to it. Dr. John F. Connell is president of this nationally renowned buff organization and among its illustrious members is a transplanted New Yorker now living in California, one Lester Fisher.

C. V. Reynolds, would like buff club secretaries to give him a helping hand in obtaining organizational data, copies of by-laws, objectives or the purposes for which the various groups were formed. He'd like to help start an organization in Houston and says the information will be helpful to him in his capacity as chairman instructor of the Texas A&M Fire School, 3220 Albans Road, Houston 5, Tex.

Next time you buffs feel called upon to point out why your firemen are entitled to better pay and working conditions, you might cite this material taken from the Long Beach, Calif., Firemen's Mutual Benefit Association newsletter, *Firelines*. The data has no less a source than the Metropolitan Life Insurance Company:

Metropolitan's survey shows that 11 per cent more firemen die on the average between the ages of 50 and 64 from organic diseases of the heart than the average industrial worker; 12 per cent above the average number of deaths are shown for accidental or undefined violence; 25 per cent more deaths are shown for cardiovascular renal diseases; 29 per cent higher number of deaths from cerebral hemmorrhage, apoplexy and paralysis and 31 per cent higher percentage from neuritis, acute and chronic.

Dr. Herbert, City of Miami physician for many years, says *Firelines*, has commented, ". . . a fireman should receive one-third more pay than other city employes, for their years of earning are one-third less."

Until the loudspeaker cracks off again, we'll be expecting to hear more anecdotes from you buff club secretaries and lone wolfers like Dr. Zaffater. (Wonder what he'd do in the middle of an extraction if a 2-11 clicked in?) The address is the same: 4234 Don Diablo Drive, Los Angeles 8, Calif., from high up in the Baldwin Hills section of the city. Requests for information should be accompanied by stamped, self-addressed envelopes. □□

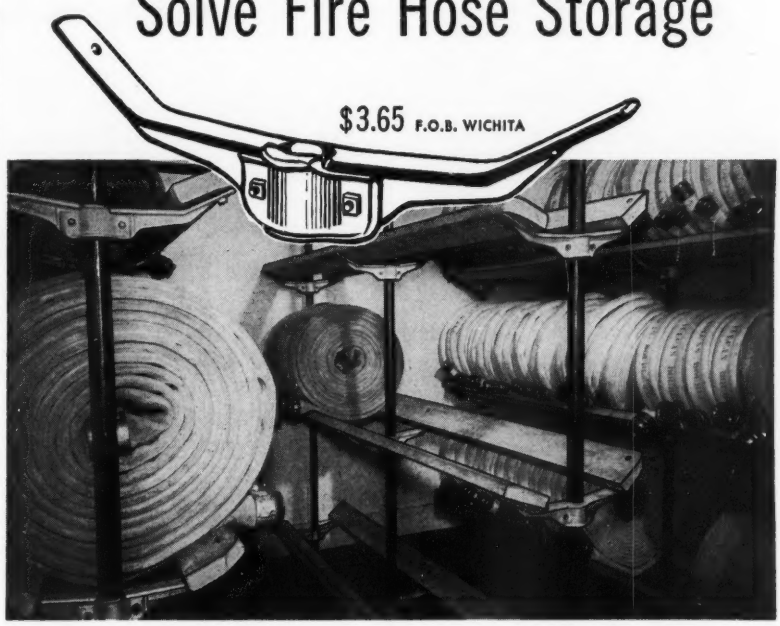
Firebug Gets Stiff Sentence

Patrick W. Russ, 24, convicted by a Monroe County, N. Y., jury of third-degree arson on February 10 for setting fire to a coal trestle was sentenced to serve 7½ to 15 years in prison. At the time of his arrest Russ admitted setting three fires resulting in more than $200,000 damages but later repudiated the confession. He was found guilty after a six day trial.

—Tom McCarthy

BRACKETS

Solve Fire Hose Storage



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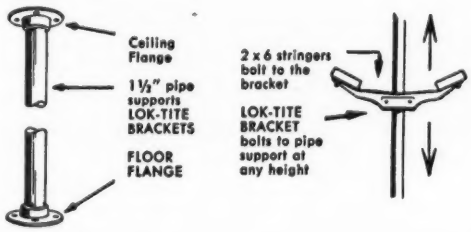
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1½" pipe supports LOK-TITE BRACKETS
FLOOR FLANGE
2 x 6 stringers bolt to the bracket
LOK-TITE BRACKET bolts to pipe support at any height

Lok-Tite Brackets for storage racks provide correct ventilation, easy inspection for serial numbers, dates, and encourages good housekeeping practices. Make the most of your space by building sturdy low-cost storage racks with Lok-Tite Brackets. It's a perfect "do-it-yourself" project.

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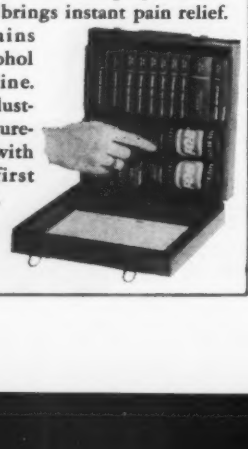

the round table

discussion of current fire department and fire management problems

Fighting Motor Vehicle Fires

THIS IS THE SECOND installment of the Round Table on fighting motor vehicle fires.

The generous response from our readers makes it necessary to carry the discussion over to the May issue. The editors will wecome any additional comments on the subject. Address replies to Round Table Editor, FIRE ENGINEERING, 305 East 45th Street, New York 17, N. Y.

The Discussion

C. C. Johnson, Chief, Emporia, Kansas: In fighting motor vehicle fires, it is not our practice to immediately remove the gas tank cap.

We find both carbon dioxide and dry powder extinguishers effective.

We do not carry asbestos blankets.

We disconnect the batteries of vehicles involved in accidents.

Thomas Collins, Chief, New Haven, Conn.: It is not our practice to remove the gas tank cap in fighting motor vehicle fires.

We use dry chemicals effectively for controlling fires in fuel tanks.

We do not carry asbestos blankets.

We disconnect the batteries of vehicles involved in accidents.

J. C. Evans, Chief, Greenwood, Miss.: We do not remove the gas tank cap in fighting motor vehicle fires.

Both dry powder and foam extinguishers have been used effectively.

We do not carry an asbestos blanket.

We disconnect the batteries of vehicles involved in accidents.

Carl P. Johnson, Chief, Portland, Maine: It has never been standard practice in this department to remove the gas tank cap, but I can see where it would be a very practical thing to do.

If the fire is of any size, the method used in this department is to put our pumps into operation and use high pressure fog, which accomplishes two purposes: Extinguishing the fire and having a great cooling effect. All our apparatus is equipped with carbon tetrachloride, carbon dioxide and dry chemical extinguishers. Carbon tetrachloride is used under the panel where wiring is involved; carbon dioxide and dry chemicals are used in other cases of automobile fires.

All of our salvage covers are of fireproof material and could be used for such purposes as protective blankets. However, such a method has never been used in this department because we use fog spray to prevent extension of fire.

It is a standard practice of this department to disconnect batteries on vehicles where fire is involved.

Thomas Pollard, Chief, Independence, Mo.: In fighting motor vehicle fires, we do not remove the gas tank cap.

We find the carbon dioxide extinguisher most effective.

We do not carry an asbestos blanket.

It is our practice to disconnect the batteries of vehicles involved in accidents.

N. Warner, Chief, Inglewood, Calif.: If the vehicle is in an upright position and there is no danger of the fuel spilling out, we remove the tank cap.

We have found carbon dioxide extinguishers to be the most effective, along with a cooling spray of water on the outside of the tank. Dry powder extinguishers are also very effective, but the possibility of polluting the fuel might damage the vehicle engine.

We do not have an asbestos blanket in our department.

We do disconnect the batteries of vehicles involved in accidents.

Peter C. Kenney, Sr., Chief, Bayonne, N. J.: We do not remove the gas tank cap in fighting motor vehicle fires, but have used a wet blanket or fog spray.

We use a dry powder extinguisher.

We carry an asbestos blanket, which is used if there is a short in the wiring inside the car.

It is our practice to disconnect the batteries of vehicles involved in accidents.

THIS MONTH'S QUESTIONS

In fighting motor vehicle fires which involve, or may involve the gasoline tank, is it your practice to immediately remove the gas tank cap?

What types of portable fire extinguishers have you found most effective for controlling fires in vehicle fuel tanks?

Do you carry an asbestos blanket to protect occupants of the vehicle and/or to prevent extension of tire fires? If so, have you successfully used it?

Is it your practice to disconnect the batteries of vehicles involved in accidents to prevent possible ignition of vapors?

Arthur King, Chief, Biddeford, Me.: In fighting motor vehicle fires, we remove the gas tank cap, if possible.

We find carbon dioxide extinguishers practical.

We do not carry an asbestos blanket. If people are trapped in cars or truck, we use fog.

It is our practice to disconnect the batteries of vehicles involved in accidents.

J. P. Newark, Chief, Grand Forks, N. Dak.: We do not remove gas tank caps unless there is every indication that the fire will be hot enough to blow the tank. Sometimes by removing the cap too soon, the vapor will ignite and involve the tank, otherwise if the cap had been left in place, the tank would not have been involved in fire.

We have found that dry powder will extinguish the fire more rapidly if applied before the surrounding metal is heated to the ignition point of the gas. However, after the metal is hot enough to cause re-ignition, foam seems to be the better of the two.

We do not carry an asbestos blanket on any apparatus.

We always disconnect the batteries of any vehicle involved in a fire or accident. There is always a possibility of a short circuit developing into a fire after the car or truck has been stored in a garage for repairs.

D. R. Gill, Chief, Lewiston, Idaho: The only time we remove the cap is when the tank is just slightly involved. If the tank is badly involved, the vapor pressure builds up to a point where an explosion may take place at any second; we feel it is better to use a fog stream and cool the tank down, than to reach in through the filler hole to reach the cap. When it is taken off, the fire may come back at you from the filler tube like a blow torch.

We have had better luck with dry powder and foam. We have had good results from carbon dioxide but find the expense of recharging the extinguisher too great when compared with the results obtained from dry powder or foam.

We have never used our asbestos blankets for protecting occupants or for preventing extension of tire fires. We did use two of them to protect a new car in a public garage from one standing next to it that was on fire, but the results were anything but good. Both blankets fell apart from either the high temperature or the water, or both.

We always disconnect the battery whenever an accident occurs, or when small fires occur involving any part of the electrical system.

R. L. Lampley, Chief, Montgomery, Ala.: We do, in some instances, remove the gas tank cap immediately and disconnect the batteries, when it is deemed necessary. However, it is very seldom that we have to do these things.

We lay a 2½-inch line with fog to all motor vehicle fires. We then use the method necessary to do the job, which might be fog, dry powder or carbon dioxide. It has been our experience, however, that dry powder is most often used.

MORE FIRE-FIGHTERS DIE

of smoke and fume inhalation than from heat and flames!

The Fireman with the Scott Air-Pak breathes SAFELY in any Atmosphere

Excessive smoke inhalation can have cumulative effects which in time can result in various disabilities and even tend to shorten life. Without complete Scott Air-Pak protection fire fighters can enter the realm of unhappy statistics.

But to the man who wears a Scott Air-Pak, the above is what happens to the other fellow. With Air-Pak protection the fireman enjoys cool, fresh air with every breath, no matter how thick the smoke gets.

And the new SCOTTORAMIC Mask gives vision unlimited — wide angle vision in all directions that helps firemen to spot danger zones quickly.

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Get smoke out, get air in

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Proved method of saving lives while also reducing smoke damage

Fire departments **nation-wide** attest to the speed with which Super Vac provides **controlled ventilation**... so necessary in modern fire fighting. This multi-purpose unit primarily (1) gets rid of smoke and fumes through its powerful vacuum action... or, (2) furnishes a tremendous blast of fresh air into the smoke-congested area, reducing the dangers of combustion and asphyxiation. Although one unit is often sufficient, **complete controlled ventilation** can be more speedily accomplished by using two or more units... one or more units **pulling out the smoke and fumes** while the remaining units **blow in a steady supply of fresh air.**

★ **Highly portable... operates in any position**
★ **Design permits vertical stacking**
★ **Made in 16" and 24" sizes**
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★ **Choice of red or white baked enamel finish**
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We do not carry asbestos blankets, but each apparatus carries tarpaulins which could be used to protect the trapped victim temporarily until the fire is extinguished.

Max Wiggins, Chief, East Point, Ga.: If possible, we remove the gas tank cap in combating motor vehicle fires.

We find both dry powder and foam extinguishers equally efficient.

We do not use asbestos blankets.

It is our practice to disconnect the batteries of vehicles involved in accidents.

Thomas Maloney, Chief, Jersey City, N. J.: We do not remove the gas tank cap in fighting motor vehicle fires. One stream is assigned to cooling the tank and the fumes are confined.

We prefer dry powder for extinguishment and foam for ultimate control.

We carry asbestos blankets. However, we have had no occasion to use them as yet.

It is our practice to disconnect the batteries of vehicles involved in accidents.

Joseph H. Clements, Chief, Arlington, Va.: It has been the practice in our department to remove the gas tank filler cap to provide a vent, when the tank may be heated. This prevents a pressure build-up in the tank.

We use both 15-pound carbon dioxide and 30-pound dry powder extinguishers. We have had good results with both types; the dry powder has given us better results on this type of fire.

We do not carry asbestos blankets.

We disconnect batteries of vehicles involved in accidents.

H. J. Coon, Chief, Syracuse, N. Y.: We do not make a practice of removing the gas tank cap. The application of fog to the tank area, with the cover intact, seems more desirable.

Dry chemical and carbon dioxide extinguishers are used by our department.

We do not carry asbestos blankets, except on our rescue company.

Our standard procedure is to remove the battery cable in all cases involving an automobile.

V. A. Parker, Chief, Cumberland, Md.: It is not our practice to remove the gas tank cap in fighting motor vehicle fires.

We find dry powder and water fog most effective in controlling such fires.

We do not carry asbestos blankets.

It is our practice to disconnect the batteries of vehicles involved in accidents.

Raye E. Power, Chief, Frankfort, Ind.: We remove the gas tank cap in fighting motor vehicle fires.

We use carbon dioxide and dry powder extinguishers with equal effectiveness.

We do not carry asbestos blankets.

It is our practice to disconnect the batteries of vehicles involved in accidents.

E. P. Feaster, Chief, Lincoln, Nebr.: We do not remove the cap on vehicle fires that involve the gasoline tank. In fact, we do not even consider removing it. If a fire has gained such considerable

headway that we think the tank might burst, we use a booster line to cool it down and keep it cool.

The portable extinguisher we have found very effective for this type of fire is the dry chemical.

We do not carry asbestos blankets and have never used them in our department.

All apparatus carry pliers and if there is any question of fire starting from the battery, it is disconnected.

Frank L. Veasley, Chief, Cleveland Heights, Ohio: We use water fog on most vehicle fires. If the fire involves the area around the gasoline tank, we would use the fog to cool the tank. Under no conditions do we remove the gas tank cap. Removing it would release the vapors in the tank and create an additional hazard from the standpoint of providing more fuel for the present fire.

We find dry powder and carbon dioxide to be the most effective and efficient portable extinguishers for this type fire.

We do carry an asbestos blanket but have yet to have an occasion to use it.

Disconnecting the battery cables is a "must" on all automobiles involved in fires or accidents.

John Krusenklaus, Chief, Louisville, Ky.: It is not our practice to remove the gas tank cap in fighting motor vehicle fires.

We have found dry powder extinguishers to be most effective.

Asbestos blankets are carried to protect persons trapped in vehicles and in conjunction with the use of the cutting torch.

It is our practice to disconnect the batteries of vehicles involved in accidents.

R. L. Shortridge, Chief, Brainerd, Minn.: We do not remove the gas tank cap because we feel the fumes might add to the fire.

We use dry powder extinguishers with good results.

We do not have an asbestos blanket.

In almost every case we disconnect the batteries of vehicles involved in accidents.

Charles Stuttler, Sr., Chief, Newport, Ky.: We do not remove the gas tank cap in fighting motor vehicle fires.

We have found both foam and carbon dioxide extinguishers to be effective.

We do not carry asbestos blankets.

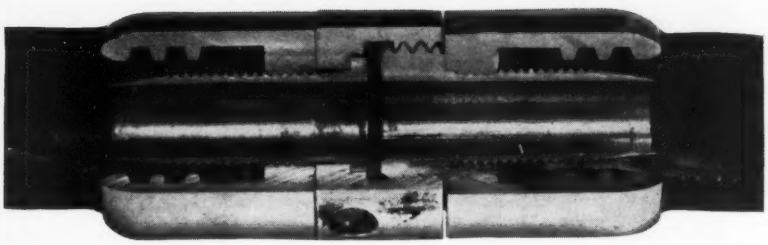
We make it a practice to disconnect the batteries of vehicles involved in accidents.

Percy Wellman, Chief, Jamestown, N. D.: We either remove the gas tank cap or have the policeman helping at the fire shoot holes in the tank with his pistol.

In our opinion, carbon dioxide is the most effective portable fire extinguisher for controlling fuel tank fires.

We do not carry an asbestos blanket but intend to buy one.

We disconnect batteries of vehicles involved in accidents and cables are cut, if necessary.



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ALLWAY ➔ FULL PRESSURE THREADS

ALLWAY COUPLING CO.

P. O. BOX 2181, GRAND CENTRAL STATION

NEW YORK, NEW YORK

WHY FIRE CHIEFS LIKE H-R HOSE

"IT'S LIGHT AND STRONG AND DOESN'T KINK"

That's the way Chief R. A. Baines, of the Suffolk Fire Department in Suffolk, Virginia, describes some of the advantages of Hewitt-Robins hose. "When you have to go into action fast, you really appreciate how easy this flexible H-R hose is to handle."

Hewitt-Robins manufactures all types of municipal and industrial fire hose, including an extra-light, extra-strong, extra-flexible type made with DuPont's "Dacron" filler. For the finest in fire hose, it *pays* to specify Hewitt-Robins.

HR HEWITT-ROBINS

Stamford, Connecticut

HEWITT RUBBER DIVISION, 240 KENSINGTON AVENUE, BUFFALO 5, NEW YORK

Questions and Answers

Coefficient Of Discharge

To the Editor:

Why is it necessary to use a coefficient of discharge when employing the hydraulic formulas to find discharge from an open butt?

C. D.

Answer: Nearly all hydraulic formulas used by the fire service to determine discharge are based on the use of nozzles. A nozzle is designed to produce a more or less solid (in cross section) or cylindrical stream of water as the liquid is discharged.

Couplings are designed for connecting hose lengths and when used to deliver water, the discharge is not solid nor cylindrical. A stream of water discharged from an open butt, hydrant butt or similar short discharge opening assumes a convex section on the under side. To make proper allowance for the diminishing cross section area a coefficient is used.

Injury at Fire

To the Editor:

In a recent examination a question was asked: "A serious injury occurs to a person (not a fireman) at a fire; you are in charge. What procedure would you follow?"

B. D.

Answer: If the person can be moved, see that he is taken to a safe location. Obtain the services of a doctor as quickly as possible. Meanwhile, detail men who have had first-aid training to render first aid, according to the existing need. Arrange to transport the patient to the hospital under the doctor's direction. Record all the details, together with statements of witnesses if possible, for insurance and other purposes.

Aspirin Fights Fire

To the Editor:

Some time back—I don't know when or where—I heard that the commonplace aspirin tablet was used in connection with fighting fire. Can you tell me anything about this?

B. W. R.

Answer: Our only information is that a Rochester machinist, John J. Imburgia, reportedly uses an aspirin tablet to trigger a device not to fight fire but to reduce water damage at fires.

A patent has been issued Mr. Imburgia on the mechanism, which consists of a steel tube which pierces the wall of a building at floor level. Steel plates held in place by coil springs close the tube at both ends.

Inside the tube an aspirin tablet holds in position a pin that prevents the steel plates from springing open. In the event of water accumulating during a fire or a

sprinkler leak, tiny holes in the inside cover of the tube permit sufficient seepage to dissolve the aspirin tablet. The plates then spring open and the tube drains off the accumulated water.

The inventor believes by thus removing water the dangers of floor overload may be avoided, with greater safety to firemen and stock.

Shutting Down A Pumper

To the Editor:

The following question appeared on an examination. What is your answer?

"The first thing to do when ordered to immediately shut down a pumper is: (1) disconnect hose; (2) close gate valves; (3) retard throttle; (4) open churn valve.

T. T.

Answer: We believe the first action should be (3). If the throttle is immediately retarded, then all the necessary remaining actions may be accomplished with ease since pump pressure will no longer be a factor. □□

February Fire Losses

Estimated fire losses in the United States during February amounted to $103,853,000, the National Board of Fire Underwriters has reported.

According to Lewis A. Vincent, NBFU's general manager, this $103,853,000 loss represents an increase of 8.7 per cent over losses of $95,569,000 reported for February 1957, and an increase of 3.9 per cent over losses of $99,918,000 for last January (1958).

Losses for the first two months of 1958 now total $203,771,000, a decrease of 3.4 per cent from the first two months of 1957, when they amounted to $210,841,000.

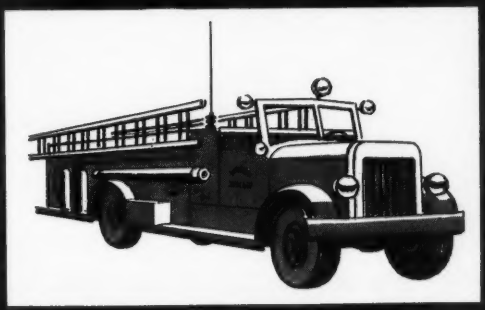
These estimated losses include an allowance for uninsured and unreported losses.

Book Shelf

RESPIRATORY HAZARDS OF THE FIRE SERVICE, *by William D. Claudy, A.B., M.D. Published by the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.; 16 chapters; 138 pages; price $3.50.*

The author is widely known for his professional articles in fire service publications (including FIRE ENGINEERING) and his services with paid and volunteer fire departments in the District of Columbia. The book provides a general reference for respiratory problems encountered in fire fighting and in the treatment of fire casualties resulting from toxic agents. It delineates the toxic gases encountered in fire fighting and describes the types and uses of modern respiratory protective equipment. Included is a chapter on "Things to Come" and a lengthy bibliography.

Dependability...



WHEN YOU NEED IT MOST!

You can count on Du Mont 2-Way Radio when you need it most under emergency conditions. It's always ready to operate at full rated power, even under the most adverse conditions. Du Mont equipment is designed for maximum performance with minimum maintenance.

Superior design, quality components, and the electronic skills of Du Mont team up to offer you the very finest in dependable, high-performance 2-Way Radio Equipment.

For the finest
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Write for complete details . . .

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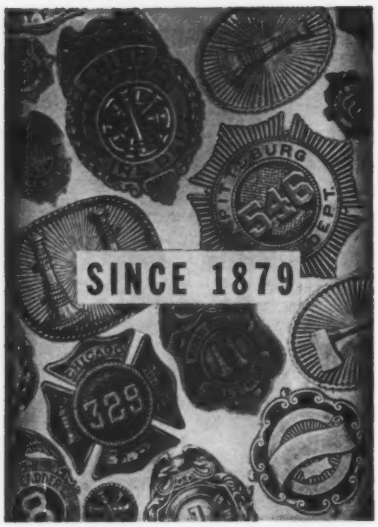

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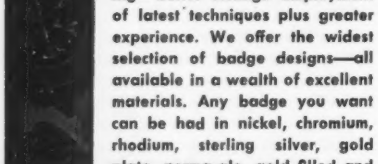
Better today than ever before in our 78 years of fine badge making—better through employment of latest techniques plus greater experience. We offer the widest selection of badge designs—all available in a wealth of excellent materials. Any badge you want can be had in nickel, chromium, rhodium, sterling silver, gold plate, perma-glo, gold filled and 14 kt. gold.

There is no substitute for top quality and experience and you get both at Braxmar.

Send for new price list on badges illustrated in our Diamond Jubilee Catalog.



THE C. G. BRAXMAR CO., INC.
Dept. FE
216 East 45th Street
New York 17, New York

short cuts and gadgets

Formula for Calculating Suction Lift

GALLONS PER MINUTE	3 INCH SUCTION	3 1/2 INCH SUCTION	4 INCH SUCTION	4 1/2 INCH SUCTION	5 INCH SUCTION	6 INCH SUCTION
300	16.1	20.3	22.9	24.1	24.8	25.5
400	8.4	17,2	20.4	22.7	23.9	25
500		12.4	18.5	20.8	22.8	24.5
600		6.3	15.3	19.5	21.3	23.9
700		4.2	11.4	17.2	19.5	23.1
750			9.2	15.9	19.5	22.7
800			6.9	14.5	18.6	22.3
900			5.9	11.5	16.7	21.3
1000				8.1	14.4	20.2
1100				7.6	12	19.7
1200				3.9	9.3	18.5
1250					8.	18.
1300					6.5	17.3
1400						16.
1500						14.5

USING 1 LENGTH OF SUCTION HOSE (10 FT.)
USING 2 LENGTHS OF SUCTION HOSE (20 FT.)
USING 3 LENGTHS OF SUCTION HOSE (30 FT.)

Captain Benjamin S. Huron, Training Division, San Antonio, Tex., Fire Department, teaches a formula for calculating the maximum lift that can be expected with the various sizes of suction hose.

He explains that this is used to answer questions raised by firemen who are curious concerning the method employed by the National Board of Fire Underwriters to compute the chart shown on Page 20 of its publication "Fire Engine Tests and Fire Stream Tables." The results obtained may vary slightly from the published data, but are sufficiently accurate for classroom purposes.

The formula is based on the assumption that a pumper is capable of creating a vacuum of 23 inches of mercury, or 26 feet of water, when drafting water through various diameters of suction hose.

$26 - [(10 \times d + L)f \times Q^2] =$ actual lift when d is the diameter of the suction hose in inches; L is the length of the suction hose in feet; f is the factor for various sizes of suction hose and Q is the quantity in hundreds of gallons per minute.

Factors for various sizes of suction hose:

3-inch—.022
3½-inch—.0099
4-inch—.00495
4-½inch—.00275
5-inch—.00165
6-inch—.000643

Publicity 'Gimmick' Helps Clear Hydrants

A Pittsfield, Mass., radio announcer came up with a new method of helping communities clear fire hydrants during the recent snow storms which blanketed the eastern seaboard.

Dan Healy of station WBRK, noting that nearly two feet of snow had fallen, announced that he would mention on the air the name of any youngster who shoveled out a fire hydrant.

Before nightfall 110 hydrants had been cleared by young volunteers in four communities.

Vamps Do Odd Jobs For Blood Donation Pledges

Volunteers of the Gloucester, N. J., Fire Department are using a clever publicity stunt to solicit blood donors for the Camden County Red Cross Blood Program.

In return for a donation pledge the members will clear snow from the donor's sidewalk; act as baby-sitters; clean cellars; and even cook a meal. In addition, they provide transportation for the donor to reach the bloodmobile.

Battalion Chief Patrick Joy is in charge of the program which has met with excel-

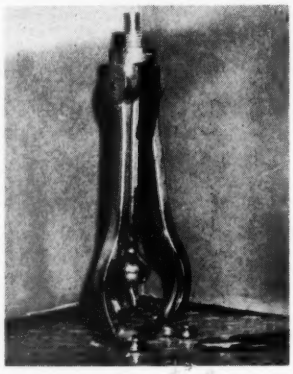
lent success. Prior to 1957, when the fire department took over the job of organizing the blood campaign, the city had never met its annual quota. With the introduction of the "odd job" idea last year, the donations have exceeded the requirements by nearly 100 per cent.

—Robert C. Bartosz

Bell Clapper Rebound Spring

Fire apparatus bells are delivered with no provision for keeping the clapper from swinging free and striking due to vibration. Some departments have sought a simple means of preventing this action.

One suggested method is to remove the bell and drill and tap the bracket as shown in the illustration. Obtain a Chrysler or similar brake spring, cut off one end and slide through the drilled hole. Lock this end with a set screw and bend other end around clapper. The bell is then replaced and operated normally.



Bell clapper assembly with muting spring

It has been found that this method prevents the clapper from bouncing against the bell when cornering or stopping, as well as preventing the clapper from muting the bell when in use. It appreciably benefits the bell tone.

—H. L. Metcalfe

In a Pinch —

From the Ohio State Fire Marshal's letter (June 1957) we cabbaged this'un:

"'Big Andy' Anderson, Minneapolis, Minn., asks: Ever try using a small coal poker to free a child's foot stuck in a pipe? Slide poker alongside of foot, catch end under heel and pry forward and up. Works slick!"

We expect to see the common garden variety of poker added to the first-aid kit of every rescue and ambulance squad.

Hose 'Life Preserver'

From *W.N.Y.F.*, official publication of the New York Fire Department, we gleaned this "short cut": At an overboard test conducted at Engine 223 (a fireboat) it was definitely established that a length of 3½-inch hose, coupled to itself, is capable of supporting from 15 to 20 men in the water. Invaluable in marine disaster (if you've got the 3½-incher)! □□

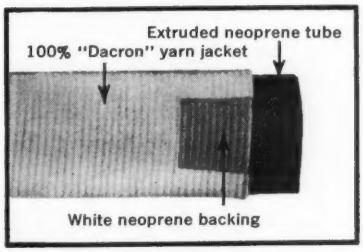
HOSE DRYING ELIMINATED with Super Qua-Flex fire hose

Now there's no need for "stand-by" emergency fire hose in plants, hospitals, and institutions while other hose dries out. Quaker Super Qua-Flex puts an end to tedious, costly hose drying operations—lets you return the hose to service immediately after use, for substantial savings in time and manpower.

Secret is in Super Qua-Flex's 100% "Dacron" jacket. It's wholly unaffected by mildew and sunlight, and with a moisture absorption capacity of only 0.5%, it can't possibly freeze. Use it indoors or out, on rack or reel.

The inside story: Inside Super Qua-Flex, you'll find an extruded neoprene tube, with white neoprene backing. This all-synthetic tubing is oil resistant, slow aging, and will never become brittle, kink, or crack. With it all, Super Qua-Flex is extremely lightweight, flexible, and easy to handle.

For more information, contact your local Quaker distributor, or write today to *Quaker Rubber Division, H. K. Porter Company, Inc., Philadelphia 24, Pa., or Pittsburg, Calif.*



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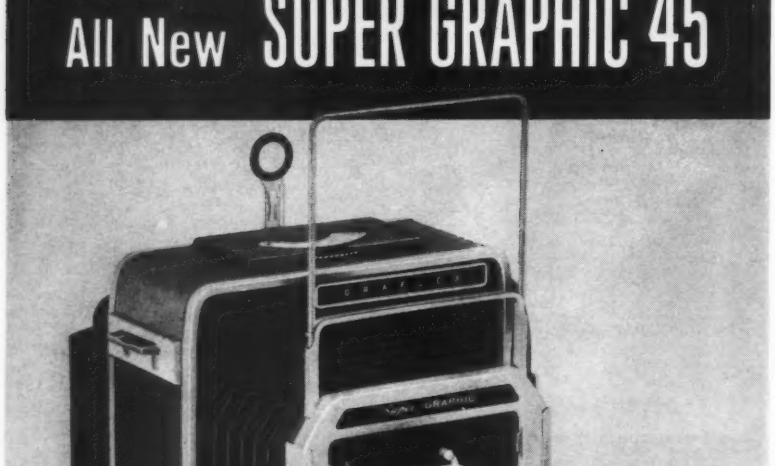
QUAKER RUBBER DIVISION

All New SUPER GRAPHIC* 45



A brand new 4x5 Graphic camera made to order for fire photography. Its many versatile features make it the answer for every departmental assignment.

NEW ADVANCED FEATURES

- Built-in Triple-Purpose Rangefinder works with large, easy-to-handle interchangeable cams that are matched for normal, wide angle and telephoto lens operation:
  It permits (1) Precision optical focusing for critical work; (2) accurate dial focusing for fast camera operation; (3) automatic indication of f-numbers for correct flash exposures.
- Automatic Flash Exposure Indicator.
- Full 360° Revolving Back with click stops for horizontal and vertical positions.
- Horizontal swing and forward tilt movements plus rising, shifting, backward tilting movements.
- Electrical body release trips shutter which operates polarized circuit for Stroboflash and Graflite.
- A single polarized 3-pin outlet eliminates dangling shutter cords.

*TRADE MARK

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What's Burning

THE FOLLOWING LIST includes fires of $10,000 and over in the United States and Canada for the period from February 20th to March 20th.

Citronelle, Ala.—Workover rig of C. A. Hurst Drilling Co. destroyed.
Fort Payne, Ala.—Black Manufacturing Co. destroyed; adjoining Presswood Hardware Company damaged.
Wynne, Ark.—Western Auto Store and Surginer's Furniture Store damaged.
Coarsegold, Calif.—One-hundred and seven-year-old Coarsegold Inn destroyed.
Los Angeles, Calif.—Goodyear Retail Store and recapping plant damaged.
Los Angeles, Calif.—Harris & Frank Clothing Store damaged.
Los Angeles, Calif.—National Oil Building housing Guardian Life Co., damaged. Paint thinner on electric fixture.
Portola Valley, Calif.—Portola Valley Supermarket damaged.
Salinas, Calif.—Dodge Packing Co. plant damaged extensively. Chloride explosion.
Branford, Conn.—Golden Anchor Hotel damaged.
Farmington, Conn.—Woodshed Inn virtually destroyed.
Milford, Conn.—Four business buildings destroyed.
New Haven, Conn.—Catholic Church damaged.
Norfolk, Conn.—Barn on Walter Carter farm and over 120 head of cattle destroyed.
Norwalk, Conn.—Building housing Katlin Fertilizer Co. and Beldoch Co., knitwear manufacturers, damaged.
Windsor, Conn.—Loomis School damaged.
Ellendale, Del.—Ellendale Excelsior Plant destroyed. Machine sparks ignited sawdust.
Harrington, Del.—Ernest E. Kellen Feed Co. granary destroyed.
Newark, Del.—Ten-room dwelling of Gustavus Smith destroyed. Defective chimney.
Washington, D. C.—Six-story apartment dwelling at 14th and Clifton Sts. heavily damaged.
Clearwater, Fla.—Three stores, stock brokerage office and supermarket damaged.
Harbor Oaks, Fla.—Ducraft Boat Works destroyed.
Tampa, Fla.—Gaylord Paper Container Co. and nearby dwelling and apartment damaged.
Tampa, Fla.—Spillers Home Builders Supply Co. lumber shed and truck destroyed. Overturned heater.
Albany, Ga.—Seeley Printing Co. plant damaged.
Atlanta, Ga.—Apartment dwelling at 253 Fourteenth Street destroyed.
Atlanta, Ga.—Berry Industrial Equipment Co., steel products plant, damaged.
Atlanta, Ga.—Higginbotham Furniture Co., Lord's Barber Shop, Glenwood Paint Center and F. Beasley's Jewelry Store, damaged.
Roswell, Ga.—Historic Presbyterian Church damaged; 119-year-old bible destroyed.
Valdosta, Ga.—Valdosta Country Club clubhouse destroyed.
McCall, Idaho—Lakeview Hotel and cafe damaged.
Chicago, Ill.—Meyers Department Store destroyed.
Chicago, Ill.—Oliver Wendell Holmes Grade School destroyed. Fire set by two boys.
DesPlains, Ill.—National Tea Co. supermarket damaged. Heating system exploded.
Mount Prospect, Ill.—Electrical Contractors Co. building damaged.
Pawnee, Ill.—Pawnee High School building destroyed.
Savanna, Ill.—Cargill Feed Co. machinery plant damaged.
Connersville, Ind.—E. W. Brockman Wholesale Co. grocery warehouse destroyed.
Richmond, Ind.—Richmond City bus terminal heavily damaged with 13 of city's 14 buses destroyed.
Atlantic, Iowa—Blue Star Foods Co. plant damaged.
Cedar Rapids, Iowa—Office and yard of Orrick Lumber Co. destroyed.
Sheldon, Iowa—Ellerbroek Ready-to-Wear and

Starret stores destroyed; Arlington Annex and Stark's clothing stores damaged.
Argonia, Kans.—Forest Implement Co. destroyed.
Henderson, Ky.—Audubon Cabinet Inc. and Period Tables Inc. warehouse damaged.
Prospect, Ky.—Dwelling of James Irvin destroyed.
Boothbay Harbor, Me.—Famous landmark Fisherman's wharf, housing motel, bar, restaurant and hardware store and nearby lobster boat, destroyed.
Portland, Me.—Huge waterfront shed damaged.
Baltimore, Md.—Henry Co.-Weiskittel Co., Inc., range manufacturing plant, heavily damaged.
Baltimore, Md.—Wagner-Cornell Bakery damaged.
Parkton, Md.—Garage-Service Station of Webster Sutton destroyed. Cleaning fluid explosion.
Wheaton, Md.—Roman Gardens Restaurant damaged.
Concord, Mass.—Lumber yard of Concord Woodworking Co. damaged.
Springfield, Mass.—Building housing children's wear specialty shop, doctors' and lawyers' offices and several beauty parlors, damaged.
Adrain, Mich.—Christ Episcopal Church damaged.
Flint, Mich.—Flint Church of Nazarene destroyed. Gas explosion.
Grand Rapids, Mich.—Auto Buff metal finishing plant destroyed.
Jackson, Mich.—Eagle Point Hotel destroyed; adjacent annex damaged.
Montage, Mich.—Arrow Foundry destroyed.
St. Paul, Mich.—Jackson Hotel badly damaged.
Waterloo, Mich.—Waterloo State Prison Camp warehouse destroyed.
International Falls, Minn.—Building housing Northern Lumber Co. office and apartments destroyed. Paint cans exploded.
Vardman, Miss.—High school building destroyed.
Columbia, Mo.—Dairy barn on agricultural campus of University of Missouri, damaged.
Kansas City, Mo.—Bellrive Hotel damaged. Elevator mechanism.
Kansas City, Mo.—Edwardsville Christian Church virtually destroyed.
Mountain Grove, Mo.—Wilson Ford Motor Co. destroyed.
Anaconda, Mont.—Boy Scout camp at Echo Lake destroyed.
Chinook, Mont.—Milk River elevator destroyed.
White Fish, Mont.—Safeway Grocery damaged. Short circuit.
Whitepine, Mont.—Forty-year-old school house destroyed.
Lincoln, Nebr.—Main building of Lincoln State Mental Hospital badly damaged.
Asbury Park, N. J.—New Lafayette Hotel damaged. Arson suspected.
Belvidere, N. J.—Row of frame stores and apartments destroyed.
Dover, N. J.—Roof Chevrolet Automobile Agency damaged.
Elizabeth, N. J.—Leonard Dry Cleaning & Laundry Co. destroyed.
Hackettstown, N. J.—Blue Ridge American Legion Home, also used as school, destroyed.
Manville, N. J.—New high school badly damaged.
Mendham, N. J.—Mortimer L. Schiff Scout Reservation dormitory-boathouse extensively damaged.
New Brunswick, N. J.—Building at 412 George Street, housing two stores and apartments damaged.
New Market, N. J.—Eighty-year-old Morecraft Building badly damaged.
Paulsboro, N. J.—Five dwellings at 110, 111, 113, 114 and 116 River Front Road destroyed.
Rockaway, N. J.—Barn and 25 Hampshire sheep on Dr. Stuart Z. Hawkes' farm destroyed.
Vineland, N. J.—Fireworks Manufacturing Co. destroyed. Explosion.
Albuquerque, N. M.—Seton Hall, freshman nurses residence at St. Joseph's Hospital, damaged.
Canandaigua, N. Y.—Treadway Inn damaged.
Cobleskill, N. Y.—Harder Silo Co. plant destroyed; adjacent coal silos of Patrick Coal Co. damaged.
Glen Cove, N. Y.—Three-story store, office and apartment building damaged.
Huntington Station, N. Y.—Town and Country Cleaners destroyed.
Mohawk, N. Y.—Building housing A. S. Beck Shoe Store and Cammeyer Shoe Store damaged.
Saratoga Springs, N. Y.—Fifty-year-old Woodbridge Hotel destroyed.

DO YOU KNOW...?

Q. What is a Hi-Light Badge?

A. A revolutionary new lightweight Blackinton Badge designed for featherweight comfort, service and appearance.

Q. Why was Hi-Light developed?

A. It was originally designed for use on lightweight summer uniforms, but has become extremely popular for year round wear.

Q. Just how light is a Hi-Light Badge?

A. A Hi-Light Badge is actually one-third the weight of a conventional brass badge, so light you hardly know you're wearing it.

Q. What other superior qualities does Hi-Light have?

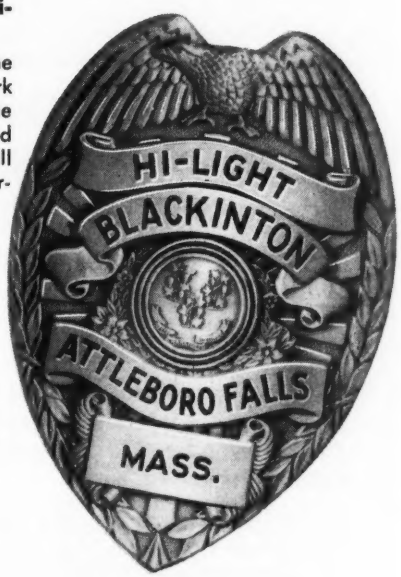
A. Even though the badge is made from an entirely new feather-light metal, it retains the same durability and high quality deep cut precision die work that has made Blackinton badges famous.

Q. What finishes are available on Hi-Light Badges?

A. Three gleaming finishes, brilliant polished nickel, long-lasting rhodium and rich lusterous gold plate.

Q. How can I recognize a Hi-Light Badge?

A. Every Hi-Light Badge has the Blackinton Hi-Light trademark stamped on the back of the badge. It's featherweight and this recognized trademark will assure you of buying and wearing the best.



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Hi-Light

Ask your equipment supplier or uniform manufacturer to show you Blackinton ***HI-LIGHT*** *Badges*

BLACKINTON

V. H. BLACKINTON & CO., INC. 120 COMMONWEALTH AVENUE ATTLEBORO FALLS, MASSACHUSETTS

VALLEY FIRE TRUCK CO.

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VALLEY CHAMPION BASIC SPECIFICATIONS

Mounted on Willys 4-WD Special Chassis—118" W.B.–115 H.P. Engine–Full Cab–500 G.P.M. Front Mount Frost Free Pump–150 PSI Class "A"—200 Gal. Booster Tank & Reel–150'–1" Hose—Hose Bed Capacity 500' of 2½" and 500' of 1½"—Ladders, Axe and Pike Pole—4 Equipment Compartments—Complete Fire Equipment as Pictured—2 Lengths of 4" Suction Hose—Write for Complete Specifications and Prices.

IDEAL FOR MANUFACTURING PLANT FIRE PROTECTION

(capable of going down narrow aisles as it is only 6½ Ft. wide and 21 Ft. long.)

THE CHAMPION WILLYS 4-WHEEL DRIVE SPECIAL FIRE TRUCK

500 G.P.M. Triple Combination Pumper Mounted on Willys' 6-226, 4-Wheel Drive Special Heavy Duty Fire Truck Chassis.

Here is a Fire Fighting Truck that will do everything that a large one will do, and can go places and fill the need that others CAN NOT. Powered by the famous Super Hurricane, 6 cylinder, 115 H.P. engine the Champion looks like big fire trucks.

Off the road fire fighting, no other can follow the Willys Champion Fire Truck. You may pump and move fire truck in motion. Pump is also frost-proof and can not freeze.

This WILLYS CHAMPION, 4-WHEEL DRIVE, all purpose fire truck is suited for Villages, Cities, Townships, as well as Industrial and Commercial Fire Protection.

Priced to sell. Direct from manufacturer to you.

VALLEY FIRE TRUCK CO.

59 Tuscola Rd. Phone TW 5-5601 Bay City, Michigan

West Islip, N. Y.—Vacant mansion owned by Ukranian Institute of America damaged. Arson.
Belhaven, N. C.—Blue Channel Corp., crab meat processing plant on waterfront, destroyed.
Biscoe, N. C.—Ben Salem Presbyterian Church destroyed.
Chapel Hill, N. C.—Chapel Hill Presbyterian Church destroyed.
Durham, N. C.—Old Durham Hotel, Ruth Gordon Fashions and Bargain House destroyed; City Sandwich Shop, Durham Sewing Machine Co. and Anderson Insurance Agency, damaged.
Greensboro, N. C.—Classroom annex of Central School virtually destroyed.
Henderson, N. C.—Two saw mill units at Perry Lumber Co. yards destroyed. Sparks from burning sawdust.
Montreat, N. C.—Girls' dormitory at Montreat College destroyed.
Rutherfordton, N. C.—Rutherford County School garage destroyed.
Smithfield, N. C.—Farmers' Warehouse destroyed.
Winston-Salem, N. C.—School of Dance and vacant business sites destroyed; adjoining Hawthorne Road Barber Shop and Hawthorne Sea-Pac, damaged.
Akron, Ohio—Akron Auction Associates store and warehouse damaged.
Cleveland, Ohio—One building of Broadway Buldiers Supply Co. destroyed.
Dayton, Ohio—McKinley Occupational School destroyed.
Defiance, Ohio—Auglaize Stone Co. damaged.
Newark, Ohio—Newark Farm Bureau building and attached grain elevator damaged.
Wilmington, Ohio—Farquhar Furnace Co. destroyed.
Oklahoma City, Okla.—Dwelling of S. Flynn damaged. Blow torch.
Bly, Ore.—Bly Lumber Co. destroyed.
Klamath Falls, Ore.—Car-Ad-Co. Mill damaged.
Pendleton, Ore.—Lane Cleaners destroyed. Solvent explosion.
Portland, Ore.—Portland Gas Co. creosote tanks damaged.
Port Oxford, Ore.—Cast Away Lodge destroyed.
Kintersville, Pa.—Bucks County Lodge destroyed.
Philadelphia, Pa.—Building housing Price Products Co. and Jackson Lamp and Shade Co. heavily damaged.
Philadelphia, Pa.—Building housing Tunick's Bar and United Auto Workers Union Local 585 offices, destroyed.
Philadelphia, Pa.—Cobbs Park Electric Co. warehouse destroyed. Explosions.
Philadelphia, Pa.—Essington Yacht Yard damaged.
Philadelphia, Pa.—Pier 56 South heavily damaged. Arson.
Philadelphia, Pa.—Ridgeway Department Store destroyed.
Scranton, Pa.—Four-story apartment dwelling housing leather goods store and typewriter firm destroyed.
Tullytown, Pa.—Four dwellings destroyed; two others damaged.
Unionville, Pa.—Barn on Foxhill Farm destroyed.
Beaufort, S. C.—Control tower of Lady's Island Bridge destroyed.
Dovesville, S. C.—Sausage plant of Winston Gandy, Jr. destroyed.
Myrtle Beach, S. C.—Imperial Motors Co. extensively damaged.
Spartanburg, S. C.—Spartanburg Elks Club destroyed.
Algood, Tenn.—Hardware store of Arnold Benson destroyed.
Charleston, Tenn.—Charleston High School building destroyed.
Chattanooga, Tenn.—Mathews House of Fashion beauty parlor and offices damaged.
Elizabethton, Tenn.—Unaka Elementary School destroyed.
Erwin, Tenn.—Erwin Lumber & Manufacturing Co. plant destroyed.
Jackson, Tenn.—Shainburg's Black and White Store destroyed; adjacent Glamour Shop damaged.
Knoxville, Tenn.—Former St. Mary's Hospital Nurses Home heavily damaged.
Memphis, Tenn.—Tri-State Veneer and Plywood, Inc. destroyed. Electric motor on wood lathe.
Nashville, Tenn.—Lynwood Construction Co. building destroyed. Arson suspected.
Dallas, Tex.—Dudly's Barbeque, Triple Nickel Washeteria, Kellum Air Conditioning and Centennial Liquors, damaged.
Dallas, Tex.—International Supply Co. damaged. Faulty automatic heating system.
Waco, Tex.—Waverly Hotel damaged.

Wichita Falls, Tex.—Building housing Hodges Tire Co. Falls and St. Paul Hotel destroyed. Cleaning tires with gasoline near welding torch.
Salt Lake City, Utah—Southeast Furniture Co. damaged.
Vergennes, Vt.—Dwelling of Cora Blair, food stores, restaurant, two hardware stores, variety store, Grange Hall and several offices, destroyed.
Fork Union, Va.—Fork Union Motor Co. destroyed. Gas explosion.
Norfolk, Va.—Ocean View Amusement Park damaged.
Tazewell, Va.—Tazewell County School Board Shop and bus destroyed. Welding torch.
Richland, Wash.—Plutonium production building at Hanford Chemical plant destroyed.
Walla Walla, Wash.—Whitman College Theater destroyed.
White Swan, Wash.—Whitis Service Station and dwelling destroyed.
Charleston, W. Va.—Four dwellings on Sissonville Road destroyed; another dwelling damaged.
Clarksburg, W. Va.—Thorofare Food Market and adjacent S & H Green Stamp Redemption Center damaged. Possible arson.
Huntington, W. Va.—Building housing U. S. Army Reserve Headquarters heavily damaged.
Logan, W. Va.—American Legion Armory of National Guard damaged.
Winnipeg, Man.—Wilson Furniture Co. warehouse, adjoining two-story building and a service station destroyed.
Hamilton, Ont.—Mordeca Trucking Co. transport garage destroyed. Overflowed gasoline caused explosion.
Timagami, Ont.—Legion Hall, recently renovated school building, destroyed.
Toronto, Ont.—Drapery Trimmings Co., Ltd. building extensively damaged.
Montreal, Que.—Bite Shop Restaurant and Montreal Acceptance Corp. offices destroyed; two women's dress shops, cigar store, book store, shoe shine parlor and hardware store, damaged.
Montreal, Que.—Service building of Royal Edward Laurentian Sanatorium destroyed; adjacent pavilion damaged. □□

Woman Awarded $15,000 For Nail Polish Blast Injuries

Mrs. Marie DeRosa, 32, of Elmsford, N. Y., who lost her right eye after a bottle of nail polish exploded when heated, received a reported $15,000 settlement on March 12 in her State Supreme Court suit.

Mrs. DeRosa sued Northam Warren Corp. of New York City, makers of the nail polish Cutex, and F. W. Woolworth, from whose store in White Plains, N. Y., she purchased the bottle involved in the case.

According to reports, Mrs. DeRosa found the one-third-full contents of her bottle gummy and she heated it in an attempt to liquefy the remaining polish. The container exploded causing the injuries.

The suit charged that the polish, reportedly containing nitrocellulose, was inherently dangerous and there was at the time of the incident, no label warning against heating.

The Cutex bottle now contains the warning "Keep away from heat."

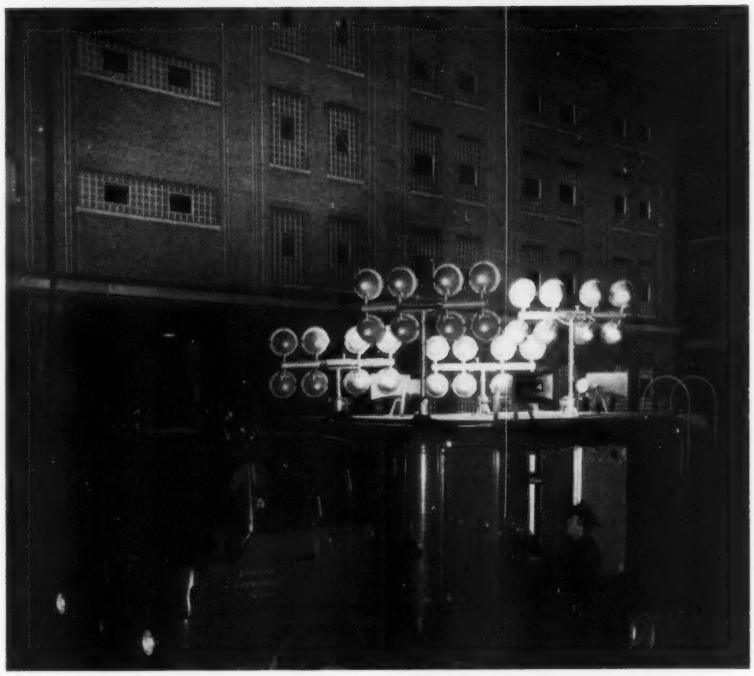
Flushers as "Mother Ships"

Sidney, Neb., firemen, handicapped by a shortage of water in fighting a blaze which leveled a welder's shop, used a street flushing tank truck to haul water to the site, a half mile west of town.

Onan ELECTRIC PLANTS

ELECTRIC PLANT NEWS

Onan ELECTRIC PLANTS



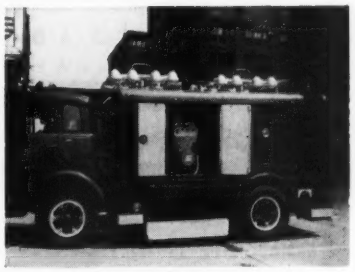
New 1,000,000 candlepower trucks equipped with Onan Electric Plants

25KW Onan units power battery of floodlights for fire fighting; provide current for auxiliary equipment, too

The Chicago fire department recently put three of these new-type lighting apparatus trucks into service, each of which has an assembly of thirty-two 500-watt floodlights. Just one of these trucks can illuminate the whole side of a large building. Floodlights are mounted on a special metal superstructure which can be adjusted to any vertical or horizontal angle. The entire assembly folds flat.

Each truck is equipped with an Onan 25KW plant housed within the truck body. It supplies 16KW for floodlighting with 9 KW in reserve for tools, blowers, other lights and communications.

Onan also builds lightweight electric plants which can be carried right up to the fire site; rig-mounted, quickly-demountable units; mobile electric plants for truck or trailer mounting; and emergency electric plants for standby use.



Onan Model 25EC-4R8 shown through open doors of truck, provides ample power, is easily accessible. Note how lighting superstructure folds flat when not in use. Lamps face down for protection. Truck also carries electric tools, reel of cable and other fire fighting equipment.

A. C. Models: 500 to 75,000 watts; also D. C. and Battery charging units.

See your Onan distributor or write for literature

D. W. ONAN & SONS INC.

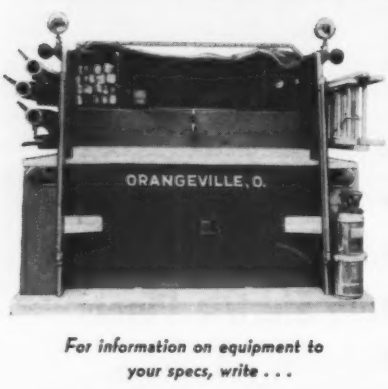
2942A University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

POSITIVE CONTROL!

for You FIREMEN



All controls are at the pump panel, a big feature in this newest equipment by Sharpsville.

Other features:

- Two high pressure fog guns with hose
- Two 1½" preconnected lines
- Ample water supply with indicator
- Special features to insure winter operation
- Simplified operation

For information on equipment to your specs, write . . .

Sharpsville

STEEL FABRICATORS, Inc.

SHARPSVILLE, PA.

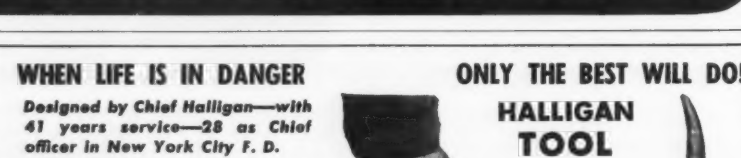
BUILDERS OF SERVICE, CRASH AND LADDER TRUCKS • VOLUME AND HIGH-PRESSURE PUMPERS • SQUAD AND EMERGENCY CARS • STORAGE TANKS

WHEN LIFE IS IN DANGER

Designed by Chief Halligan—with 41 years service—28 as Chief officer in New York City F. D.

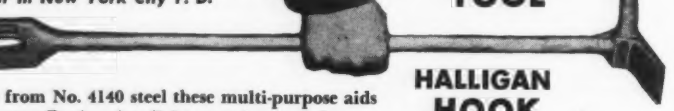
ONLY THE BEST WILL DO!

HALLIGAN TOOL



HALLIGAN HOOK

From 3 to 10 ft.



Made from No. 4140 steel these multi-purpose aids to entry—effective for light metal—cars—planes—roofs—walls—ceilings—even plywood and glass brick.

Save time, life and property—Use the Halligan aids to forcible entry! **See your dealer or write for data and prices.**

Used by Fire Depts., Police Depts. and Emergency Services everywhere.

M. A. HALLIGAN—1505 Metropolitan Avenue, New York 62, N. Y.

Obituaries

Former Chief Henry F. Drake

Henry F. Drake, 67, former chief of the Stanford Fire Company, Clinton Corners, N. Y., died March 10, at Vassar Hospital following a stroke.

A contributor to FIRE ENGINEERING and a key figure in New York State fire circles for many years, Chief Drake was a member of the International Association of Fire Chiefs; a past director of the Eastern Association of Fire Chiefs; and past secretary-treasurer of the New York State Association of Fire Chiefs. He retired in 1955 as a field representative of the Bureau of Fire, New York State Division of Safety.

Ex-Chief Royal S. Holmes

Royal S. Holmes, former chief of the East Berlin, Conn., Fire Department, and former superintendent of the East Berlin Water Department, died at his home in that town on January 23. Chief Holmes, 62, was stricken suddenly with a heart attack, and was pronounced dead on arrival at New Britain General hospital.

Tom Magner

Chief Francis M. Durkin

Chief Francis M. Durkin, 52, of the Springfield, Ill., Fire Department died of a heart attack on February 16 while on duty at the station of Engine No. 3.

Chief Durkin appeared as a member of the home inspection panel at the recent New Orleans conference of the International Association of Fire Chiefs, of which organization he was a member. He was also president of the Springfield Federation of Labor and a member of the International Association of Fire Fighters.

Chief D. A. Sleeper

Chief David A. Sleeper, 53, of the Bar Harbor, Me., Fire Department, died February 26 after a short illness. Chief Sleeper joined the fire department in 1933; was appointed assistant chief in 1940 and chief in 1946. He was a member of the International Association of Fire Chiefs, the New England Association of Fire Chiefs and the Maine State Association of Fire Chiefs. □□

5 Million Acres Burned

The Department of the Interior reported March 17th that 5,220,070 acres of Federal and Indian lands were burned over during 1957, compared to 631,375 acres in 1956. Most of the damage was caused by 403 fires that destroyed 4,839,-281 acres in Alaska. The major cause of these fires was lightning, according to the department.

World-Wide Fire News

Air Force Broadcasts Fire Prevention Program In Far East

As part of its program of fire prevention by the U. S. Armed Forces, the Air Force stationed in Japan broadcast over Radio Station FEN, Tokyo. Personnel of the Tachikawa Air Base participated in the broadcast which was heard by more than 90 million people, according to the radio commentator.

Shown in the photograph is Chaplain (Major) Norris T. Morton, well known to FIRE ENGINEERING's readers, quoting from this publication; Base Fire Marshal, Lt. Col. George T. Buchmeier (left); and Deputy Base Commander, Lt. Col. James S. Cogswell.

Capetown's Biggest Fire

What is reported to be the biggest fire in Capetown, South Africa's history occurred January 29 last in the Table Bay docks. Property losses were listed at $28 million.

Principal destruction was among large fruit warehouses; it is said that in three hours the raging blaze set back fruit and general cargo facilities of the dock area three years. No more fruit will be accepted until further notice.

Details concerning the cause of the blaze and how it was fought are delayed, but it is known that the crews of two British ships saved their vessels, the 20,001-ton Winchester Castle and the 15,054-ton Dunnotar Castle, by keeping streams of water on their sides.

From the World News Ticker

A curbside firecracker stand exploded in downtown Karachi, Pakistan, March 5, starting a raging fire that burned out an entire block of buildings. At least 26 persons, including several children, were killed. . . . In Bickleigh, England, a truck loaded with bottled beer caught fire on a lonely country road. The driver reported later to his boss he did the best he could. He saved the truck, but had to pour plenty of beer on the fire to do it. . . . Fire that raged through a poor section of San Juan, Puerto Rico, March 4, destroyed 185 houses and left 958 homeless. Three youngsters were injured. . . . The mayor of Gaustalla, Italy, Gino Castagnoli, spent an uneasy 15 minutes on a Saturday night, locked in his office while

CAIRNS LEATHER

FIRE HELMET

The "NEW YORKER"—No. 5A
AMERICA'S "REGULATION" STANDARD
FOR MORE THAN A HUNDRED YEARS

The "original" of all leather helmets, the "NEW YORKER" was introduced by CAIRNS in the early 1800's and has steadily been improved in design and material throughout the years since. Its selected, specially-tanned, top-grain steer hide leather and its time-tested design make the "NEW YORKER" the safest, toughest, strongest, most durable helmet on the market—approved and accepted by the largest, most efficient fire departments in America.

THE FIREMEN'S
FIRST LINE OF DEFENSE

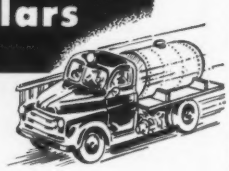
The CAIRNS "LIFE-GUARD" LINE also includes other leather helmets, in other styles and weights—as well as helmets in aluminum and FLINT-FLEX plastic in regulation and drop-brim styles.

Write for Catalog 351 showing everything a fireman needs for his personal equipment—together with Department Record Books, Secretary's Books, and printed forms.

CAIRNS & BRO., INC. - Allwood, Clifton, N. J.

SINCE 1836

Build your own fire truck for a few hundred dollars



The time has come when rural fire protection should leave the "Fancy Dan" class so that every small community can do a real down-to-earth job of extinguishing fires rapidly, simply and inexpensively.

The nickel plate, red paint, gadgets and polish are good if you can afford them. But all you need for sound, economical fire protection is an Oberdorfer All Bronze Pump hooked up to the transmission of a dependable truck that carries a tank of water loaded with a good wetting agent.

Effective fire control starts just as soon as this outfit can reach its destination and a man can grab the nozzle end of the booster hose and get to the fire. The resulting penetrating stream of over 120 lbs. pressure is the fastest and most important phase of fire fighting.

Do you have a garage, a truck and a mechanic with a little common sense? We have the pump you need. Write for details.

PERFORMANCE DATA—No. 26 PUMP SHOWN ABOVE

Pump Shaft R.P.M.	Pounds Pressure	Hose Length and Size	Dry Suction Lift in Feet	Vol. in Gal. Per Minute
1600	120	500'—1½"	20'	150

For complete specifications of this and other Oberdorfer All Bronze Booster Pumps, and name of your nearest distributor, write:

FIRE PUMP DIVISION OBERDORFER FOUNDRIES, INC., Syracuse, N.Y.

IT'S NEW!

The biggest improvement in a portable fan in 20 years.

For Ejecting Smoke from Burning Buildings

Check the features of the new Airex Portable Fan.

16" 3 blade propeller
Housing with built-in venturi—an Airex exclusive
Lighter weight of unit
Smoke odor neutralizing attachment (illustrated on fan)

Dealer Inquiries invited. Write for detailed information

MOUNTAIN STATES EQUIPMENT CO.
1238 Speer Boulevard Denver 4, Colorado

fire ravaged the city hall. The fire, of unknown origin, caused the ceiling of the anteroom of the mayor's office to collapse, temporarily trapping him until firemen could rescue him. All official records of the town of 14,000 were destroyed. . . . One of Panama's most historic buildings, the 162-year-old Church of Santa Librada in Las Tablas, was almost destroyed by fire on February 26. Ten religious images, some dating from the 16th century, were lost in the two-hour blaze caused by a short circuit. . . . Comes a delayed report from Bombay which says that seven persons were killed and 30 injured in Hyderabad City by the explosion of a gas cylinder meant for filling toy balloons at the all-Indian Industrial Exposition. . . . Fire, caused by an overheated stove, destroyed the Chilean Antarctic base Dario Risopatron March 10. There were no injuries and valuable equipment used for observations in the International Geophysical Year was removed without damage. . . . A fire early on March 9 in the glass-domed Grand Palais exhibition hall in Paris destroyed part of a housewares show. . . . The 5,292-ton British cargo ship Mano burned at its berth in Greenock, Scotland. . . . Rescue teams removed six bodies from the ruins of a three-story apartment house in Palermo, Italy. Several others were reported missing and at least 20 were injured. . . . The press said that Robert Shaw, an apprentice fitter of Durham, England, took his job too seriously. He was boss of the fire extinguishers at the paper mill where he worked; when there were no fires to put out, Shaw started four of his own, causing $50,000 damage. . . . A 20-pfennig red and black West German stamp bears the words "Verhutet Wald-Brande!" (Prevent Forest Fires!) printed in white against a background of charred trees. Not a bad idea for this nation to follow. . . . A Toronto woman was rescued February 26 from the Niagara River gorge into which she had fallen, by firemen and policemen using an aerial fire ladder. The ladder, with a large basket on the end, was extended over the gorge and then lowered into position for a fireman to place the woman in it. Hundreds of spectators braved the cold, driving rain to watch the rescue.

Plane Crash Kills 10

Ten persons, at least half of them children, were killed and 11 others badly injured and burned in Castelar, a suburb of Buenos Aires, on March 10, when an Argentine Air Force jet fighter burst into flames and crashed into a quiet suburban street filled with playing children.

The plane, a British-built Meteor twin-jet, skidded four blocks before it came to a blazing halt. In its skid it chopped down everything in its path, trees, telegraph poles, lamp posts, and set at least 11 fires in homes. Several other residences were reported damaged.

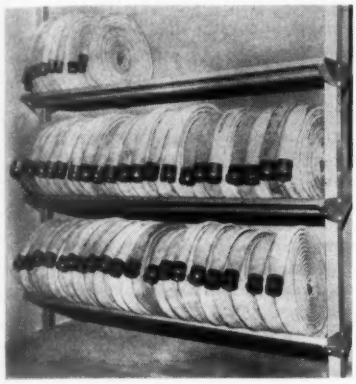
The disaster occurred on the first day of school after the summer holidays and more youngsters than usual were in the streets near the schoolhouse. Authorities said the plane took off from a nearby military airfield on a routine flight.

MANUFACTURERS' NEWS

Continued from page 300

Circul-Air Hose Rack

The Circul-Air Corp., 575 E. Milwaukee, Detroit 2, Mich., have introduced "Econo-Rak," an inexpensive steel hose storage rack.



A single section unit 8 feet, 5 inches long with three hose tiers holds 3,000 feet of 2½-inch hose; two-tiered racks hold 2,000 feet. A section consists of the uprights (end members) complete with ceiling and floor sockets, stringers and brackets. The uprights are furnished 12 feet long and may be cut to desired height.

Alfco Foam Resists Water

An improved Foamite ST unit, employing a new protein stabilizer type charge, produces chemical foam which it is claimed resists water discharged from an overhead sprinkler system. Manufactured by American LaFrance Corporation, Elmira, N. Y., the new unit is said to eliminate the need for water deflection canopies in industries using dip tanks, drain boards and quenching tanks. A series of tests recently completed at the company's experimental station in Elmira demonstrated the new foam will function whether water from overhead sprinklers is applied before, during or after a foam blanket has been laid. □□

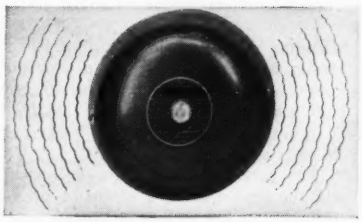
Extinguisher Plays Part in Laboratory Explosion Suit

James C. Jay, a student of Walla Walla College, recently was awarded $27,303 judgment against the Washington school. Jay had suffered an eye injury as the result of a fire and explosion in a chemistry laboratory on February 10, 1957.

In his complaint he contended he entered the laboratory trying to put out a fire, found the fire extinguisher empty, and was injured in the subsequent explosion. He alleged negligence on the part of the college in not keeping the extinguisher filled. The Superior Court jury ruled in his favor after a five-day trial.

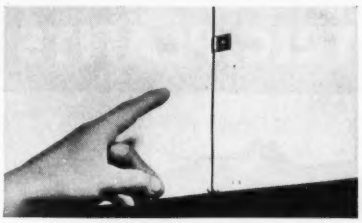
Frank Maddux

AUTOMATIC FIRE ALARM



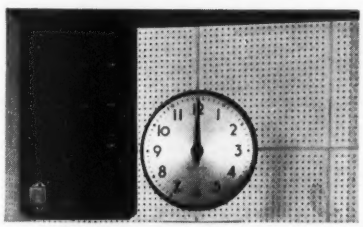
1. Save priceless lives, protect valuable buildings with the Kidde Atmo Fire Detecting and Alarm System!

2. This automatic detecting and warning system sounds an alarm instantly at the *first* hot breath of fire!



3. It uses rate-of-temperature-rise tubing as a sensing element. The system works even if outside power fails!

4. Kidde's Atmo system can sound alarm at fire area, outside the building or at local fire department station!

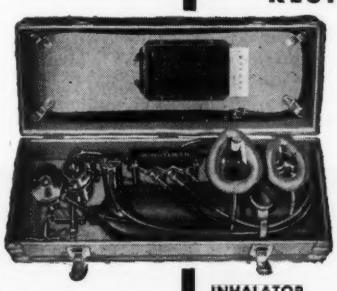


5. Kidde's Atmo system also gives fire location at a panel near any manned telephone switchboard!

Kidde Atmo
FIRE DETECTION
J. H. SCHARFF, INC.
433 Main Street, Orange, N. J.
A Subsidiary of
Walter Kidde & Company, Inc.

For fast, dependable fire detection and warning, install a Kidde Atmo Fire Alarm System. Ideal where life protection and early fire warning is essential, the Kidde Atmo system can also close doors, shut off fans, motors, blowers, is automatically re-setting after use or test. Get more information! Write today and ask for Kidde's Atmo Alarm Systems booklet!

FAST IMMEDIATE SERVICE IN RESPIRATORY EMERGENCIES



STEPHENSON "MINUTEMAN" RESUSCITATOR
Simple Dependable Safe

Especially designed in weight and size, for quick, easy application in cases of fume suffocation, gas poisoning, heart attacks, etc.

Write for FREE demonstration or pamphlet F-502

INHALATOR
ASPIRATOR
RESUSCITATOR

STEPHENSON CORPORATION
RED BANK NEW JERSEY

THE WATCH DESK

overhauling the firemanic news of the day

Firehouse Prowler Nabbed

Last month we told about the unfortunate Brothers of Battalion 4, Chicago Fire Department, whose double units returned from two false alarm calls only to find their quarters had been entered and their best TV set carted off.

Now comes more favorable news—from Manhattan, where Patrolman John Mannion figured something must be wrong when he saw a man emerging from the empty station of Ladder 40 about 1:30 a.m. on the morning of March 8.

"What are you doing here?" asked the officer, a rookie of four months.

"I'm gonna distribute these leaflets," said the man waving a fistful of printed warnings against kerosene heaters which are issued by firemen. At the same moment a wrist watch dropped from the man's coat sleeve.

Mannion drew his gun and made the suspect hold up his hands. A frisk revealed a switchblade knife and a blackjack. So Mannion took his prisoner to the West 100th Street police station.

When Ladder 40 returned from a mattress fire at 260 West 131st Street, the firemen found their quarters ransacked. The only thing missing was Lieutenant Weikko Lindquist's wrist watch.

Costly Sneeze

In Kalamazoo, Mich., a sneeze caused two fires and a traffic accident at different locations more than three hours apart.

As the press had it, one John Arnold sneezed while driving his car and rammed the rear of another. His cigarette was knocked from his mouth in the mixup and he forgot all about it in the excitement.

Flames broke out in the seat cushions of Arnold's car as it was being towed to a garage and the tow car took the burning car to a fire station for aid.

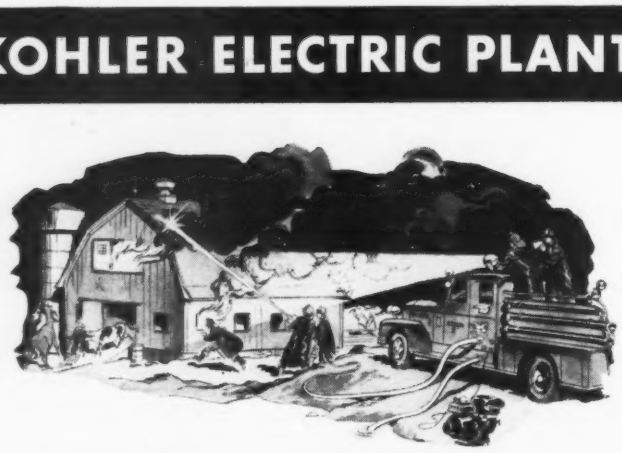
The brothers did their stuff and Arnold's car still under tow, took off.

At a garage, three hours later, the blaze came to life again and destroyed the car interior.

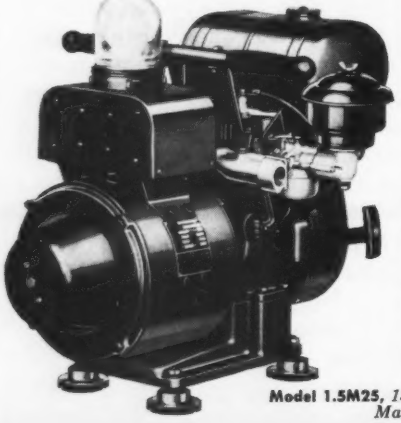
Hot Off the Tape

The adage, "Tots and matches cause fires," has gone modern. In Rockland, Mass., recently, firemen extinguished a bedroom blaze caused they said, by a tot playing with a *cigarette*. . . . On the outskirts of Denver, Colo., flames flared through a two-story house, February 2, setting off an alarm that sent three Denver fire companies, sheriff's officers and other emergency services barreling to the scene. Fire Chief Dale Wasinger of suburban Cunningham explained, with a red face, that it was all in the name of a fire drill for his vamps. . . . A school bus filled with children careened into a culvert in Aurora, Ill., and burst into flames. Eighteen of the youngsters and the driver were burned, but all escaped death. . . . Vandals set fire to the Maplewood, N. J., Junior High School library February 2 and flames spread to four classrooms; five firemen were injured; loss $100,000. . . . *Story of the Month:* Out on Lake Grove, Long Island, N. Y., fire destroyed a still on March 10 while Treasury agents were wrecking it. The still, capable of producing 1,000 gallons of 180-proof alcohol per day, was raided on March 6. Wrecking crews employed an acetylene torch to help raze the still. The torch touched off the alky and it, together with the barn and equipment, went up in flames. . . . On January 8, 90,000 eggs were overcooked when fire consumed a trailer truck in Albert Lea, Minn. Firemen saved all but 250 cases. A second truck was called to pick up the rescued hen fruit. Its driver, with the pilot of the burned truck, had themselves a breakfast of—you guessed it—scrambled eggs. . . . A fit companion-piece to that yarn is a report

KOHLER ELECTRIC PLANTS



Independent power for fire-fighting, civil defense



Volunteer and municipal fire departments rely on compact, portable Kohler electric plants for floodlights, power tools. Models for emergency service maintain communications, alarm signals, when normal power is interrupted.

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from Mt. Vernon, Maine, of the destruction by fire of 11,000 chicks at the Dunn's Corner farmstead of Leo Dumont. . . . Out Battle Creek, Mich., way it took two hours, and seven cans of kerosene, to get a fire going in a condemned house so the local Brothers could get a dose of "training-by-doing." Assistant Chief Barrows explained, "It is difficult to get a fire going in an empty house." . . . Sad news from Madill, Okla. Seems the city commission found a problem on its hands when residents voted on a $15,000 bond issue to finance a new fire engine. The vote was tied at 293 for and 293 against. . . . You heard that 'un about Charles O'Neill, 50, of Culver City, Calif., who almost lost his life in a fire because he didn't think it was decent for him to be seen on the street without his clothes on. He was trapped in the fire until a policeman found him. But he refused to be rescued. The bluecoat finally forced O'Neill to safety. . . . About 50 mail boxes in Giles County have been destroyed by vandals using large firecrackers or clubs. The sheriff said miscreants drive up to the boxes and either drop in a firecracker or smash the box. The Fed's have been notified. . . . At Miller, S. D., more than $50,000 was collected in behalf of eight firemen burned by an exploding fuel tank at Highmore, S. D., last August 22. Four of the eight volunteers died and the remaining four underwent long hospitalization.

Apparatus Burglar Alarm

The siren on a Westmoreland, N. H., Fire Department pumper recently acted as an effective burglar alarm to report the theft of the apparatus itself.

At 3:30 a.m. one January day, Fire Chief Paul Hatt received a call from one of the firemen asking where the fire was. The vamp said he had heard the apparatus siren and was anxious to know the location of the alarm.

Chief Hatt, having no knowledge of any call, investigated and found the pumper missing. He immediately notified the sheriff of the situation.

Within 15 minutes the pumper was found abandoned in a snow bank a short distance from the village. Two 19-year-old youths were picked up near the scene and admitted taking the apparatus from the station. While on their joy ride they accidentally (?) tripped the siren tipping off the inquisitive vamps. Cheshire County Solicitor Arthur Olson Jr. issued warrants charging the youths with burglary and larceny.

J. W. Graveline

Fire Official in "Hot House" Fire

Fulton County, N. Y., Fire Coordinator William I. Wood recently put in a fire call when a hot house on his property became hotter than intended.

The wood and glass building was being dried out for planting when it caught fire. The Berkshire Volunteer Fire Department made short work of the fire which was blamed on an oil burner.

—G. Proper

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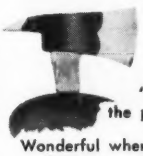

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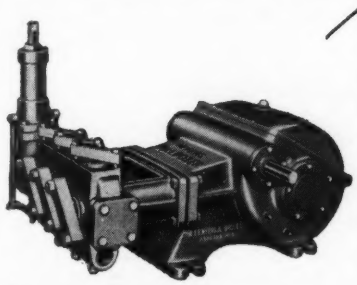

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FIRE COLLEGES

Alabama State Fire College—June 16-20, University, Ala. For information, write W. L. Rickard, Assistant State Supervisor, Trade and Industrial Education, Box 2847, University, Ala., or R. Henry Ryan, State Instructor, Fire Service Training, Box 2847, University, Ala.

Arizona State Fire School—Oct. 16-18, Phoenix, Ariz. Director, Battalion Chief Jake Siken, Fire Fighting Instruction Supervisor, 49 South First Street, Phoenix, Ariz.

Central Missouri Fire Conference—July 25-27, University of Missouri, Columbia, Mo.

Colorado State Fire School and Tournament—June 18-21, LaJunta, Colo. Secretary, Colorado State Firemen's Association, Arthur J. Becker, 2224 South Stuart Street, Denver 19, Colo.

California Fire Training Officers' Workshop—May 19-23, 1958, Fresno, Cal. **California Arson and Fire Investigation Seminar**—June 16-20, 1958, University of California, Berkeley, Cal. For information, contact Thomas S. Ward, Supervisor of Fire Training, State Department of Education, 721 Capitol Avenue, Sacramento, Cal.

Delaware Short Course in Firemen Training and Fire Prevention—Apr. 19-20, Camden-Wyoming Fire House, Camden, Dela. For information, contact Charles H. Jester, Chairman, Educational Committee, Delaware Volunteer Firemen's Association, Camden, Dela.

Florida State Fire College—May 19-23—**Liquefied Petroleum Gas;** June 9-13 and June 16-20—**Fire Pump Maintenance;** Aug. 4-8—**Seminar in Arson Investigation and Detection.** Sept. 8-12—**Units 101,** Tools, Forcible Entry, Breathing Apparatus; **107,** Arson Detection; **201,** Instructor Training. Sept. 15-19—**Units 102,** Hose and Ladders; **106,** Fire Inspection; **202,** Company Officer Training. Sept. 22-26—**Units 103,** Rescue, Ventilation, Salvage and Overhaul; **105,** Fire Apparatus and Pumps; **204,** Fire Fighting Tactics. Sept. 29-Oct. 3—**Units 104,** Fire Streams; **206,** Fire Prevention and Protection; **208,** Fire Department Administration. For information, contact W. H. Barnett, Superintendent, P. O. Box 785, Ocala, Fla.

Illinois State Fire College—June 9-12, University of Illinois, Champaign-Urbana. For information write J. I. Fetters, Extension Specialist, Firemanship Training, University of Illinois, Champaign, Ill.

Indiana State Fire School—Sept. 9-12, Purdue University, Lafayette, Ind. For information contact Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette, Ind.

Iowa State Fire School—June 17-20, Iowa State College, Ames. Director, Keith Royer, Supervisor Firemanship Training, 110 Marston Hall, Iowa State College, Ames, Ia.

Kansas State Fire School—Oct. 20-23, University of Kansas, Lawrence. Director, Clyde A. Babb, 111 Fraser Hall, University of Kansas, Lawrence, Kans.

Kentucky State Fire School—June 3-5, University of Kentucky, Lexington, Ky.

Maryland Aerial Ladder Short Course—Aug. 4-6; **Annual Short Course for Firemen**—Sept. 2-5, University of Maryland, College Park. Director, Robert C. Byrus, Fire Service Extension, College of Engineering, University of Maryland, College Park, Md.

Michigan State Fire College—June 17-20, University of Michigan, Ann Arbor. Director, Francis Hartman, Supervisor, Firemanship Training, 4524 Administration Building, Ann Arbor, Mich.

Minnesota Regional Volunteer Firemen's School—July 12, Le Center, Minn., Fairgrounds. For information write, Fred A. Pischel, Le Center Fire and Safety Company, Le Center, Minn.

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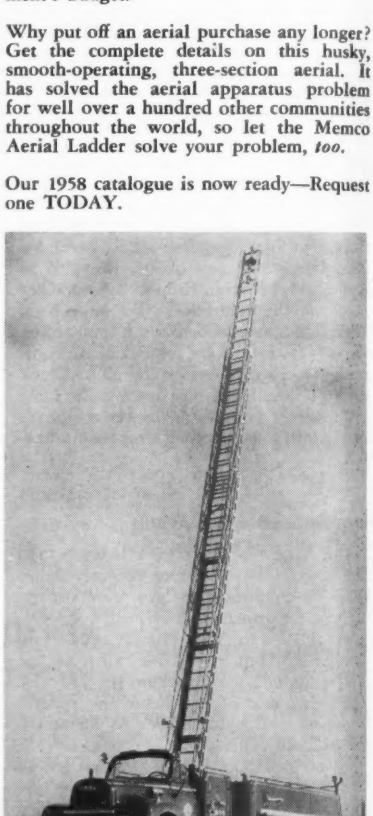

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Placerville Fire Department, Placerville, California
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Minnesota State Fire School—Apr. 28-May 2, Univ. of Minnesota Farm Campus, St. Paul.

Mississippi State Fire School—June 23-27, Mississippi State College, Starkville, Miss.

Morris County, N. J., Fire School—May 6, Wharton Fire Headquarters, Wharton; June 3, Mine Hill Fire Headquarters, Mine Hill Township; July 1, Rockaway Fire Headquarters, Rockaway; August 5, Roxbury Engine Company, Succasunna; September 2, Morristown Municipal Airport, Morristown. For information, write Robert H. Wright, Publicity Chairman, Long Hill Lane, Chatham, N. J.

Nebraska State Fire School—May 4-6, Nebraska Fire Service Training Center, Airport Grounds, Grand Island, Neb. Director, Otto B. Johannes, 2604-12th Street, Columbus, Neb. Secretary, Russell D. Salak, P. O. Box 312, Schuyler, Neb.

New Hampshire Firemanship School—Sept. 8-12, Fitzwilliam, N. H. For information, Contact Chief Donald Holbrook, Meadowood Fire Department, Fitzwilliam, N. H.

New Jersey State Fire College. Northern Area—Dover High School on five consecutive Wednesday evenings, Apr. 16, 23, 30, May 7, 14. For information, contact Chief Harry Diffenderfer, Fort Dix Fire Department, Fort Dix.

New Mexico Fire Protection Conference—Oct. 13-15, Socorro, N. M.

North Carolina Fire College—May 5-9, Charlotte, N. C. For information write Chief Charles L. Burkett, Director, Fire Headquarters, Salisbury, N. C.

Northeastern Pennsylvania Volunteer Firemen's Federation Fire School—June 7-8, Simpson, Pa. For information, contact James H. Oakey, Director, Box 67, Tobyhanna, Pa.

Ohio State Fire School—Sept. 8-12, Ohio State University, Columbus. For information, contact Wayne C. Jenkins, Chief of Fire Prevention, State Fire Marshal's Office, Wyandotte Building, Columbus, Ohio.

Oklahoma Fire College—Apr. 22-25, Oklahoma A. & M. College, Stillwater, Okla.

Pennsylvania Fire School—Apr. 28-Nov. 1. Six distinct courses within each training cycle. **Annual State Fire School**—Aug. 4-8; **D-2 Extension Course**—Aug. 11-15; all at Pennsylvania Fire School. For information, contact Art Espey, Director, Box 631, Lewistown, Pa.

Purdue Arson Investigators Seminar—Apr. 28-May 2, Purdue University, Lafayette, Ind. For information, contact Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette, Ind.

Purdue University Fire Administration Courses—June 4-6—**Industrial Fire Control Seminar.** For information, write Professor Shelby Gallien, Director, Public Safety Institute, Purdue University, Lafayette, Ind.

South Dakota Fire School—June 8-13, Spearfish, S. D. School Chairman, Robert Hanigan, Secretary, State Volunteer Firemen's Association, Box 423, Pierre, S. D.

Southern Wisconsin & Northern Illinois Fire School—Sept. 6-7, Savanna, Ill. For information, write Norton T. Ames, Oregon, Wis.

Tennessee State Fire Service School—Aug. 18-23, Middle Tennessee State College Campus, Murfreesboro, Tenn. Director, Homer S. Elkins, 215 Chestnut Street, Chattanooga.

Texas Fire School—July 20-25, Texas A & M College, College Station, Tex. School is sponsored by the Texas Firemen and Fire Marshals Association in conjunction with the Extension Service of Texas A & M College.

Virginia Firemen's School—June 23-27, Williamsburg, Va. Director, Chief Elliott W. Jayne, Fire Headquarters, Williamsburg, Va.

Virginia State Fire School—Aug. 25-29, South Boston, Va. Director, Lawrence Oliver, Supervisor, Fire Service Training, P. O. Box 654, Harrisonburg, Va.

Please turn page

From one chief to another . . .

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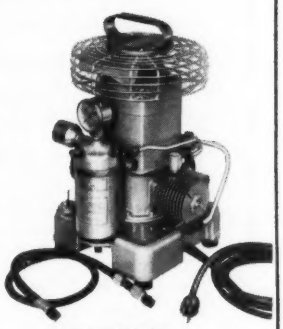

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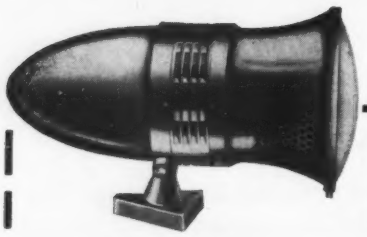

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Washington County, Ore., Fire School—May 3-4 and 10-11, Hillsboro, Ore.

Washington State Annual Conference—July 23-26, Chehalis, Wash.

West Virginia State Fire School—July 21-25, West Virginia University, Morgantown, W. Va. Director, R. E. Hanna, Jr., Department of Extension of Industrial Science, School of Mines, West Virginia University, Morgantown, W. Va.

Western Pennsylvania Firemen's Training Institute—Aug. 18-22, State Teachers College, California, Pa. For further information contact James Silbaugh, Secretary, Fire School Committee, Uniontown, Pa. □□

Coming Events

May 5-7—**Southwestern Association of Fire Chiefs.** Annual meeting, Albuquerque, N. M. Secretary-Treasurer, Chief T. L. Townley, Jr., Fire Headquarters, Norman, Okla.

May 7-10—**Arizona State Firemen's Association.** Annual meeting, Safford, Ariz. For information, contact Chief Irvin Talley, Fire Headquarters, Stafford, Ariz.

May 15-17—**Eastern Association of Fire Chiefs.** Annual meeting, York, Pa. Secretary-Treasurer, Chief Edwin J. Clark, Box 328, Wayne, Pa.

May 15-16—**Southeastern Association of Fire Chiefs.** Annual meeting, Wheeling, W. Va. Secretary-Treasurer, Chief G. A. Mitchell, Fire Headquarters, Opelika, Ala.

May 19-23—**National Fire Protection Association.** Annual meeting, Chicago, Ill. General Manager, Percy Bugbee, 60 Batterymarch Street, Boston 10, Mass.

June 2-4—**Missouri Valley Fire Chiefs Association.** Annual conference to be held at the Hotel Antlers, Colorado Springs, Colo. Secretary-Treasurer, Chief Ray Tiller, Waterloo, Iowa.

June 8-11—**New York State Association of Fire Chiefs.** Annual meeting, Schroon Lake, N. Y. Secretary, Ward A. Bohner, Waterville, N. Y.

June 9-11—**New Mexico State Firemen's Association.** Annual meeting, Silver City, N. M. Secretary-Treasurer, F. W. Wynn, Hobbs.

June 13-15—**Michigan State Firemen's Association.** Annual meeting and fire school, Niles, Mich. Secretary-Treasurer, Stirling Garrow, 816 Oak Street, Port Huron, Mich.

June 18-21—**Colorado State Firemen's Association.** Annual meeting, school and tournament, LaJunta, Colo. Secretary, Arthur J. Becker, 2224 South Stuart Street, Denver 19, Colo.

June 19-21—**Hudson Valley Volunteer Firemen's Association.** Annual meeting, Albany, N. Y. Secretary, Charles M. Fales, 92 Clove Avenue, Haverstraw, N. Y.

June 23-26—**New England Association of Fire Chiefs.** Annual meeting, Wentworth-by-the-Sea, Portsmouth, N. H. Secretary-Treasurer, John W. O'Hearn, 2-6 Mt. Auburn Street, Watertown, Mass.

June 26-28—**International Fire Buff Associates, Inc.** Annual meeting, Baltimore, Md. Secretary, E. R. Damaschke, 915 West Marshall Avenue, Ferndale 20, Mich.

July 11-12—**Dutchess County Volunteer Firemen's Association.** Annual meeting, Millbrook, N. Y. Secretary, Albert Belle Isle, Box 125, Glenham, N. Y.

July 14-16—**Michigan State Fire Chiefs Association.** Annual meeting, Traverse City, Mich. Secretary, Chief Harry L. Ridout, Fire Headquarters, Muskegon Heights, Mich.

July 18-19—**Hudson-Mohawk Volunteer Firemen's Association.** Annual meeting, Rotterdam, N. Y. Secretary, Harold A. Gass, 3058 Albany Street, Schenectady, N. Y.

Aug. 17-21—**Firemen's Association of the State of New York.** Annual meeting, Syracuse, N. Y. For information contact the offices of the Association at the Hotel Martinique, Broadway and 32nd Street, New York 16, N. Y.

Aug. 19-20—**Canadian Association of Fire Chiefs.** Annual meeting, Hamilton, Ont. Secretary-Treasurer, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Sept. 11-13—**Westchester County Volunteer Firemen's Association.** Annual meeting, Dobbs Ferry, N. Y. Secretary, Harold E. Ackerman, 60 Concord Avenue, White Plains, N. Y.

September 14—**Great Lakes Association of Fire Chiefs.** Annual meeting held in conjunction with the International Association of Fire Chiefs, Los Angeles, Cal. Secretary-Treasurer, Chief Elmer Stough, 605 - 4th Street, Lorain, Ohio.

September 15—**Pacific Coast Inter-Mountain Association of Fire Chiefs.** Annual meeting held in conjunction with the International Association of Fire Chiefs, Los Angeles, Calif. Secretary-Treasurer, Jay W. Stevens, Merchants Exchange Building, San Francisco.

September 16-19—**International Association of Fire Chiefs.** Annual meeting, Los Angeles, Calif. Secretary-Manager, B. Richter Townsend, 232 Madison Avenue, New York 16, N. Y.

September 18—**Delaware Fire Chiefs Association.** Semi-annual meeting, Citizens' Hose Company No. 1, Smyrna, Dela. Secretary, Charles H. Jester, Camden, Dela.

Sept. 19-20—**Delaware Volunteer Firemen's Association.** Annual meeting, Smyrna, Dela. Secretary, E. Reynolds Bradley, Smyrna, Dela.

Nov. 13-15—**International Rescue and First Aid Association.** Annual meeting, Jacksonville, Fla. Executive Director, Max L. Spray, 101 North Alfred Street, Alexandria, Va. □□

City Department Borrows Volunteer Tanker

The Auburn, N. Y., Fire Department borrowed a 1,125-gallon tanker from the Fleming No. 1 Fire Department during the recent February snow storm and subzero cold spell. At the same time Fleming Assistant Chief James Lawton was hired to drive the emergency vehicle.

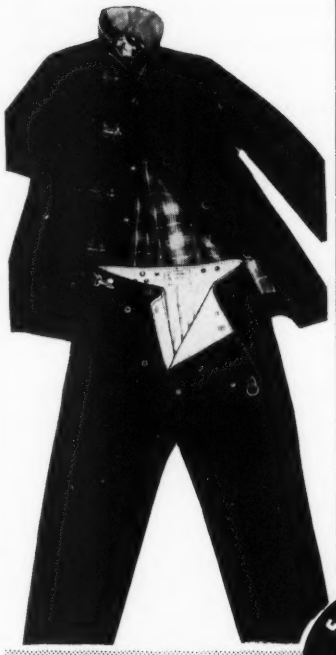
Auburn officials stated the tanker would be used in case cold weather froze hydrants or the high snow banks made locating hydrants difficult. None of the Auburn pumpers carries more than 150 gallons in its booster tank.

Doctors on Ambulances?

A bill has been introduced before the New York State Legislature which would mandate the use of attendants on ambulances.

There has been some criticism of the lack of doctors in ambulances operated by some municipalities and at least one county board of supervisors has raised the issue.

Proponents of the idea believe that many lives would be saved in emergency cases where a doctor arrived at the scene instead of a person with no medical training.



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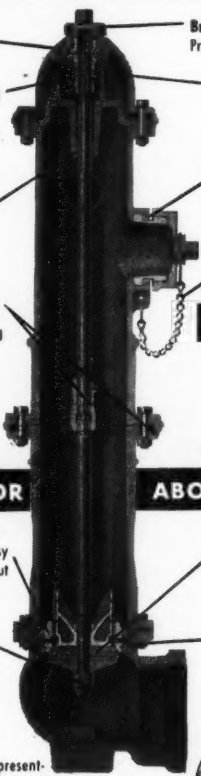

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Persons in the News

McMurray Chief In Ferndale

William McMurray was appointed chief of the Ferndale, Mich., Fire Department on January 13th, replacing Chief Ray L. Wixson who retired on December 31st.

Chief McMurray joined the fire department in 1942; was appointed a sergeant in 1946; lieutenant in 1952; and captain in 1956.

Twins Are Fire Chiefs

Ralph and Fred Jackman, 33-year-old twins, are fire chiefs of Vergennes and Bristol, Vt., respectively. They are the sons of a fireman and what's more, were born on July 4.

Fire fighting in Vergennes and Bristol is on a volunteer basis. Vergennes has 21 firemen and Bristol, 26. When they are not operating at fires, the Jackmans operate a large fuel business, Ralph and an elder brother in Vergennes, and Fred and another brother in Bristol.

The Jackmans became firemen in Bristol and Vergennes in 1947. Ralph became chief in 1954 and Fred was named Bristol chief early this year.

Jonas Welcome

Investigator Straeter Retires

Raymond L. Straeter, investigator-in-charge of the Los Angeles Fire Department's arson bureau for the past five years has retired.

Straeter, acknowledged to be one of the outstanding arson experts in the country, was appointed to the fire department on November 19, 1936. Two years later he was assigned to the arson unit and served in it until his retirement shortly after the first of the year.

He was one of the co-organizers of the California Conference of Arson Investigators and a director of the International Association of Arson Investigators.

His book, "Techniques of Arson Investigation," is used by arson investiga-

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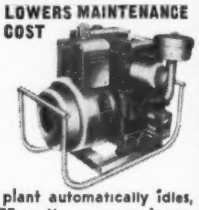

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tion students throughout the United States, Hawaii and foreign countries.

Straeter has lectured at or participated in arson programs at Purdue University, University of California, and the University of Southern California.

He has participated in programs of conferences of the International Association of Fire Chiefs and at the Arson Prevention Conference held in New Orleans in 1955. He also supervised training of Los Angeles police officers in fire detection techniques.

Straeter will enter the public relations field.

Cliff Dektar

Chief T. M. Cook Retires

Chief Thomas M. Cook of the Valdosta, Ga., Fire Department has announced his retirement effective May 1, culminating a career of over 52 years' service with the department.

Chief Cook joined the department in 1905 and in 1916 was appointed chief. He is a member of the International Association of Fire Chiefs and the Southeastern Association of Fire Chiefs.

Daniel G. Aid

Asst. Chief Winkler Retires

Assistant Chief Frank Winkler of the Los Angeles City Fire Department has retired after more than 36 years of service.

At the time of his retirement, Chief Winkler had been in command of Division II which takes in Hollywood, Wilshire and the West Los Angeles areas.

He formerly was headquarters assistant chief, number three in command of the LAFD under former Chief Engineer John H. Alderson.

As such, Chief Winkler was in charge of fighting many of Los Angeles' major fires in recent years ranging from those on the waterfront and in the oil fields to brush blazes.

Promotions to fill the vacancy caused by Chief Winkler's retirement include Battalion Chief Thomas F. Turley to assistant chief rank and Captain Walter E. Olsen to battalion chief status.

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NEWARK LADDERS

Continued from page 291

Auxiliary electric power is provided by an automatic generator in case of commercial power failure.

The base station is connected to the central office by underground leased lines which lead to duplicate remote control units for use by the dispatchers. In spite of these precautions a fault developed in the underground leased lines.

It is a matter of record that the base station was disabled for 5½ hours by the line failure. However by utilizing Ladder 11, the radio system was actually "out of service" a total of 10 minutes. To prevent further recurrence of the line trouble, leased cables using alternate routes are being provided as a supplement to the existing connections.

The coverage offered by these elevated mobile antennas hardly varies from that provided by the regular base station antenna mounted on a 120-foot mast. Messages are exchanged freely between all units in the city and the fireboats on the river.

The services of any one of the ladder companies have been offered to the police department, which operates on 156.21 mc. All that is required is that one of the police vehicles be placed next to the ladder and its mobile radio connected to the antenna. It has been further determined by actual test that the antenna-equipped ladders may prove invaluable in the event of a civil defense emergency. Dispersal of equipment may be accomplished and at the same time effective communications maintained between all units and the controlling base station. In a dispersal practice operation, one of the radio-equipped ladders maintained communications with the fire department base station, civil defense headquarters and mobile units while located behind a low range of mountains eight miles west of the City of Newark. □□

The material upon which the foregoing is based was supplied to FIRE ENGINEERING *by Chief Engineer Harry J. Sommers, through the courtesy of fire Director James T. Owens.*

Marine Fireman Injured Fatally

Marine Pfc. James Astle, 21, of Fall River, Mass., driver of a Quantico, Va., Marine Base pumper, was fatally injured December 10 last when struck by a civilian truck. Marine officials said that Astle was returning from a training exercise near the Marine Corps School when he experienced mechanical difficulty with the apparatus.

He stopped on Highway 610 and was standing beside the fire engine when struck by a truck owned by a Washington, D. C., firm. The Marine was taken to the base hospital and died of his injuries the following day. The driver of the truck was charged with reckless driving.

—Irving W. Johnson

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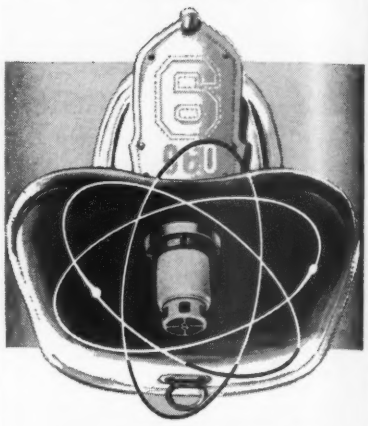

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Our Readers Write Us

Chief Can't See Integration

To the Editor:

An editorial entitled "Combine the Fire-Police Departments?" appeared in our local paper not long ago (Longmont *Times-Call*, February 12).

There has been no talk about integration that I know of in the city administration, but now that the seed has been planted, I am wondering if it may not find fertile ground for germination.

I have read with great interest the comments and editorials in FIRE ENGINEERING and have weighed the merits of possible integration in my own way, but as yet no one has convinced me that it is very practicable or workable.

Our town has close to 15,000 population. It is a very nice town—clean, well laid out, good schools, lots of churches, etc. It has a good administration, a good class of people and I am proud to call it my home. Now, because it is my intention to speak about combining fire and police departments, let me tell you a little more about us.

First, our police department is what is considered to be a very efficient organization. There are 13 regular officers, two merchant police and one police bailiff. These men do their job and whenever we need their cooperation on problems relating to our work, we can count on them in full.

I can tell you more about the fire department because I have been in it for 21 years. We have seven men including the chief, and in addition, have 10 volunteer or auxiliary firemen.

While there are probably a good many things upon which we could improve, we are principally a fire control unit. I feel that in this we have done our job. Over a period of 18 years we have had but three burnouts. Two of these were grain mills and on both of these we were able to contain the fire to building of origin, saving the rest of the plant. The others included an all-frame trucking concern and a National Guard armory. We have not lost a single residence or a single life in, or as a result of fire.

It is not my intention to brag, Mr. Editor, but (with such a record) I am just wondering what it is that John Q. Public wants of a fire department, other than for firemen "to quit playing cribbage."

Maybe they don't realize that firemen work, or put in their time (as folks like to point out) on an average of 72 hours weekly for about the same pay as most other folks earn in their 40-hour week!

Maybe they don't know that some of us do not like police work at all and that is why we are firemen. And I have an idea that there is more than one police officer who feels the same way too.

Stay on our side, Mr. Editor! We sure need you!

Joe W. Greeno
Chief of Fire Department
Longmont, Colo.

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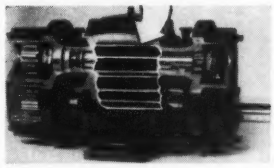

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New York City Organizes for Disaster

The New York Fire Department has developed a mutual aid program with various city, public and private agencies in order to better cope with a major disaster. Details were worked out by departmental officers under the direction of Fire Commissioner Edward F. Cavanagh, Jr.

"In the event of a disaster beyond the control of the normal efforts of the department," said the commissioner, "we have been assured of aid in manpower and equipment by public utility corporations, industrial concerns, city agencies, the Port of New York Authority, the New York Transit Authority, the Army, Navy, Air Force, Coast Guard and others.

"This mutual aid program covers each of the five boroughs separately as well as the city at large," said the commissioner. "Sources where manpower and equipment are available are listed alphabetically by boroughs. Alongside each listing is its telephone number."

Some idea of the variety of facilities made available to the department under the assistance program may be realized from the following index for each of the boroughs: Acetylene and oxygen burning equipment, air compressors and air tools, boats, bulldozers, cranes, ditch-digging machines, divers, eductors, foam supplies, fork lifts and hi-los, helicopters, lighting equipment, pumps and pumpers for fire duty, shorers and bracing materials, sky trucks or giraffes, snow plows, trailers, flushing machines to carry water, welding trucks and wreckers.

Printed copies of the inventories are in possession of Commissioner Cavanagh, all deputy fire commissioners, the chief of department, all assistant chiefs, deputy chiefs in charge and in each of the five central offices of the Bureau of Communications.

This mutual aid program is separate and apart from agreements of mutual assistance which have been in effect between the city and its neighboring county of Westchester for many years.

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English Lightweight Pump

What is said to be an innovation in small pumps will be displayed at the forthcoming Brussels International Exhibit in April.

The pump, built of aluminum alloy, was invented by James Goodyear of Great Britain, weighs 11 pounds, and is said to deliver 31 gpm at 85 psi with a driving engine of 3.1 bhp.

The product is an adaptation of the Archimedes "screw" with the addition of a rotating plate. Metal-to-metal contact is said to be eliminated by using a rubber stator surrounding the rotor screw. It is claimed the pump produces a pulseless action. *British Information Service*

AERIAL LADDERS

Continued from page 287

American-LaFrance in 1904 had a raising device consisting of coil springs, a toothed stationary gear segment, a train of gears operated by two crank handles and an automatic hydraulic controlling cylinder containing a non-freezing oil. The controlled passing of the liquid from one side of the plunger to the other permitted the ladder to be held at any desired point by the closing of a valve.

The manual spring-assist aerials practically dominated the market until the general adoption of all-hydraulic mechanisms. Spring-assist models were built by Seagrave, American-LaFrance, Pirsch, Mack, Ahrens-Fox, Walters and Four Wheel Drive. Quite a few of these were constructed on contracts for quantities from several of the larger cities and were not regular production models.

Most of the pre-motor age aerials were drawn by three horses, but in a few cities four-horse teams were standard practice, with six-horse hitches used sometimes during winter months. Hitches of three horses abreast were not practical in localities where heavy snows could be expected to stay on the streets, because the middle horse would not have a track to run in, and some northern cities adopted the tandem hitches. Drivers of the tandem teams were experts in handling two or three pairs of reins and in manipulating the bull whips with which they could reach either side of the lead horses with unerring accuracy. □□

(To be continued)

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OVER 80% of N. Y. City's Firemen are Delehanty-Trained

The Original
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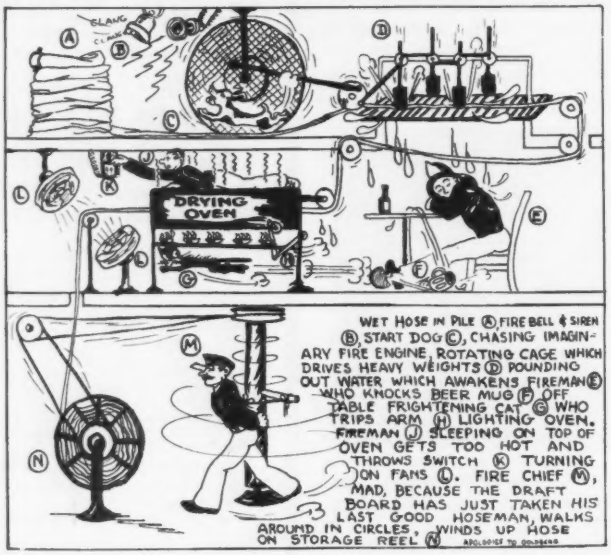
DRYING OVEN
WET HOSE IN PILE (A) FIRE BELL & SIREN (B) START DOG (C), CHASING IMAGINARY FIRE ENGINE, ROTATING CAGE WHICH DRIVES HEAVY WEIGHTS (D) POUNDING OUT WATER WHICH AWAKENS FIREMAN (E) WHO KNOCKS BEER MUG (F) OFF TABLE FRIGHTENING CAT (G) WHO TRIPS ARM (H) LIGHTING OVEN. FIREMAN (J) SLEEPING ON TOP OF OVEN GETS TOO HOT AND THROWS SWITCH (K) TURNING ON FANS (L). FIRE CHIEF (M), MAD, BECAUSE THE DRAFT BOARD HAS JUST TAKEN HIS LAST GOOD HOSEMAN, WALKS AROUND IN CIRCLES, WINDS UP HOSE ON STORAGE REEL (N)

Ridiculous, isn't it? . . . Shu-u-r-r-e, it is . . . but no more ridiculous than the "horse-and-buggy" ideas that condemned good hose to an early death-by-hanging (in a tower) or by baking-in-the-sun.
Now, then . . . let's take a look at the contented firemen in the picture below. *Their* "Fringe Benefits" include *CIRCUL-AIR* . . . the safest, fastest, easiest-to-use Dryer that actually *revolutionized Fire Station Design.*

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The ORIGINAL
Electric Hose Dryer

- Eliminates Ugly Hose Towers
- Dries Hose in a Few Hours
- Dries Fire Clothing, Too
- Keeps ALL Hose in Service
- Reduces New Station Costs

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Roto-Jet "Automatic" HOSE WASHER

SCRUBS — RINSES — DRAINS

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- Washes Uniformly With or Without Detergents
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ADVERTISING INDEX

FIRE ENGINEERING

APRIL, 1958

	Page
Akron Brass Mfg. Co., Inc.	299
Allway Coupling Co.	309
American District Telegraph Co.	266
American Fire Apparatus Co.	273
American LaFrance Corp.	256–257
American Rubber Mfg. Co.	255
Anson, Inc.	333
Ardmore Products	259
Atlas Safety Equipment Co., Inc.	269
Bean Div., John; Food Machinery & Chemical Corp.	252–253
Bi-Lateral Fire Hose Co.	331
Blackinton & Co., Inc., V. H.	315
Boardman Co.	261
Body-Guard Mfg. Co.	328
Boston Woven Hose & Rubber Co.	258
Braxmar Co., Inc., C. G.	312
Bullard Co., E. D.	306
Cairns & Bro., Inc.	319
Circul-Air Corp.	334
Cornelius Co,	325
Delehanty Correspondence School	333
DuMont Laboratories, Inc., Allen B.	311
Duo-Safety Ladder Corp.	267
DuPont de Nemours & Co., E. I.	260
Eagle Signal Corp.	271
Electronic Protection, Inc.	304
Elkhart Brass Mfg. Co., Inc.	303
Eureka Fire Hose; Div. of U. S. Rubber Co.	295
Everson-Ross	331
Fabric Fire Hose Co.	249
Fairbanks, Morse & Co.	325
Federal Sign & Signal Corp.	247
Fol-Da-Tank Co,	330
Four Wheel Drive Auto Co.	Back Cover
Fyr-Fyter Co.	250
Gamewell Co.	278
General Electric Co.	254
Globe Mfg. Co.	327
Goodrich Industrial Products Co., B. F.	251
Graflex, Inc.	314
Hale Fire Pump Co.	324
Halligan, M. A.	318
Halprin Supply Co.	326
Handford Brown Co.	333
Hannay & Son, Inc., Clifford B.	268
Harron Labs	329
Hewitt-Robins	310
Howe Fire Apparatus Co,	270
Janesville Apparel Co.	329
Kidde & Co., Inc., Walter	321
Kohler Co.	322
McIntire Brass Works, F. N.	326
Mack Fire Apparatus	274
Mann Edge Tool Co.	323
Maxim Motor Co.	Inside Front Cover
Memco Aerial Ladder Co.	324
Midwestern Safety Mfg. Co.	333
Morning Pride Mfg. Co.	330
Motorola Communications & Electronics, Inc.	276
Mountain States Equipment Co.	329
Mueller Co.	322
Myers & Bro. Co., F. E,	323
National Coaches, Inc.	297
National Foam System, Inc.	264
Nielson-Rionda, Inc.	329
Oberdorfer Foundries, Inc.	326
Onan & Sons, Inc., D. W.	317
Pacific Reflex Signs	326
Parco Products Co.	329
Pirsch & Sons Co., Peter	Inside Back Cover
Potter-Horn, Inc.	331
Powhatan Brass & Iron Works	277
Pyrotronics Division, Baker Industries, Inc.	336
Quaker Rubber Div., H. K. Porter Co., Inc.	313
Rockwood Sprinkler Co.	262
Russell Uniform Co.	331
Scharff, Inc., J. H.	329
Scott Aviation Corp.	305
Sharpsville Steel Fabricators, Inc.	311
Smith & Co., D. B.	263
Stephenson Corp.	322
Sterling Fire Alarm Co., Inc.	328
Super Vacuum Mfg. Co., Inc.	305
Superior Signal Co.	329
Valley Fire Truck Co.	313
W-B Manufacturing Co.	305
Ward LaFrance Truck Corp.	272
Waterous Company	305
Waukesha Motor Co.	265
Wincharger Corp.	329
Wooster Brass Div., Fyr-Fyter Co.	272

G

NG

Page
299
309
266
273
256–257
255
333
259
269
252–253
331
315
261
328
258
312
306
319
334
325
333
311
267
260
271
304
303
295
331
249
325
247
330
ack Cover
250
278
254
327
251
314
324
318
336
333
268
329
310
270
329
321
322
328
274
323
ont Cover
324
332
330
276
329
327
323
297
264
329
326
317
328
329
ack Cover
331
277
330
311
265
331
325
318
268
321
307
321
306
277
305
269
275

ERING

PAGE (

E(S) MISSING